302 Fergus

Murray, Mary

From: Eder, Michael
Sent: Wednesday, October 30, 2019 11:55 AM
To: DEQ SW Program
Subject: FW: [EXTERNAL] Mister M Landfill
Attachments: H19090536_272017.pdf; H19090536.pdf

RECEIVED
OCT 30 2019
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

From: Wanda Johnson [mailto:wjohnson@energylab.com]
Sent: Monday, October 21, 2019 9:54 AM
To: Eder, Michael <Mike.Eder@mt.gov>
Subject: [EXTERNAL] Mister M Landfill

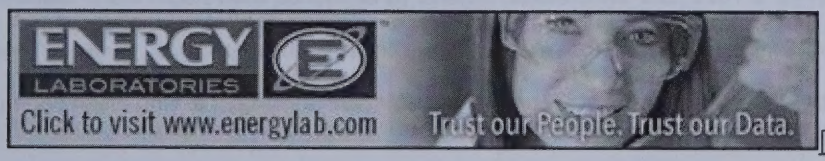
Good Morning Mike
We apologize for the delay in this report. If you have any questions please contact our office.

Please contact our accounting team at 406-869-7270 or by email at accounts@energylab.com with any questions.

Visit our website to pay-online at www.energylab.com/account-services/ [energylab.com]

Energy Laboratories, Inc. appreciates your business.
Sincerely,

Wanda Johnson
Project Manager
Office: 406.442.0711
Toll free: 877.472.0711
Fax: 406.442.0712
wjohnson@energylab.com



[energylab.com]

This transmission is CONFIDENTIAL. If you have received this in error, please contact Energy Laboratories, Inc. immediately

ANALYTICAL SUMMARY REPORT

October 17, 2019

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H19090536

Project Name: Mr. M Landfill

Energy Laboratories Inc Helena MT received the following 7 samples for MT-DEQ Solid Waste Section on 9/21/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090536-001	MW-9R	09/17/19 13:38	09/21/19	Aqueous	Conductivity Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H19090536-002	MW-OW	09/17/19 15:10	09/21/19	Aqueous	Conductivity Anions by Ion Chromatography pH 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H19090536-003	MW-12	09/17/19 16:15	09/21/19	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration MCAWW 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H19090536-004	MW-11	09/17/19 16:53	09/21/19	Aqueous	Same As Above
H19090536-005	MW-HW	09/17/19 17:42	09/21/19	Aqueous	Same As Above
H19090536-006	MW-HW DUP	09/17/19 17:42	09/21/19	Aqueous	Same As Above
H19090536-007	Trip Blank 8393	09/17/19 13:38	09/21/19	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

Amanda Carlson
Assistant Laboratory Manager-Helena,MT

Digitally signed by
Amanda B. Carlson
Date: 2019.10.17 16:54:02 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-001
Client Sample ID: MW-9R

Report Date: 10/17/19
Collection Date: 09/17/19 13:38
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/24/19 09:19 / SRW
pH Measurement Temp	11.7	°C				A4500-H B	09/24/19 09:19 / SRW
Conductivity @ 25 C	855	umhos/cm		1		A2510 B	09/24/19 09:19 / SRW
INORGANICS							
Chloride	8	mg/L		1		E300.0	09/24/19 14:03 / SRW
Sulfate	54	mg/L		1		E300.0	09/24/19 14:03 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.74	mg/L		0.01		E353.2	09/23/19 13:23 / cmm
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 16:05 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 16:05 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw
Dichlorodifluoromethane	0.28	ug/L	J	0.50		SW8260B	09/23/19 16:05 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
cis-1,2-Dichloroethene	2.1	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 16:05 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 16:05 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 16:05 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-001
Client Sample ID: MW-9R

Report Date: 10/17/19
Collection Date: 09/17/19 13:38
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 16:05 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 16:05 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Tetrachloroethene	0.80	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 16:05 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 16:05 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 16:05 / kjw
Surr: 1,2-Dichloroethane-d4	86.0	%REC		70-130		SW8260B	09/23/19 16:05 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/23/19 16:05 / kjw
Surr: p-Bromofluorobenzene	101	%REC		76-127		SW8260B	09/23/19 16:05 / kjw
Surr: Toluene-d8	109	%REC		79-122		SW8260B	09/23/19 16:05 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-002
Client Sample ID: MW-OW

Report Date: 10/17/19
Collection Date: 09/17/19 15:10
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/24/19 09:21 / SRW
pH Measurement Temp	12.0	°C				A4500-H B	09/24/19 09:21 / SRW
Conductivity @ 25 C	633	umhos/cm		1		A2510 B	09/24/19 09:21 / SRW
INORGANICS							
Chloride	22	mg/L		1		E300.0	09/24/19 14:17 / SRW
Sulfate	ND	mg/L		1		E300.0	09/24/19 14:17 / SRW
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 16:37 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 16:37 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
cis-1,2-Dichloroethene	4.3	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 16:37 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 16:37 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 16:37 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 16:37 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 16:37 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-002
Client Sample ID: MW-OW

Report Date: 10/17/19
Collection Date: 09/17/19 15:10
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 16:37 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 16:37 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 16:37 / kjw
Surr: 1,2-Dichloroethane-d4	83.0	%REC		70-130		SW8260B	09/23/19 16:37 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/23/19 16:37 / kjw
Surr: p-Bromofluorobenzene	100	%REC		76-127		SW8260B	09/23/19 16:37 / kjw
Surr: Toluene-d8	107	%REC		79-122		SW8260B	09/23/19 16:37 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-003
Client Sample ID: MW-12

Report Date: 10/17/19
Collection Date: 09/17/19 16:15
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	09/24/19 09:23 / SRW
pH Measurement Temp	12.3	°C				A4500-H B	09/24/19 09:23 / SRW
Conductivity @ 25 C	710	umhos/cm		1		A2510 B	09/24/19 09:23 / SRW
INORGANICS							
Chloride	7	mg/L		1		E300.0	09/24/19 14:32 / SRW
Sulfate	39	mg/L		1		E300.0	09/24/19 14:32 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.15	mg/L		0.01		E353.2	09/23/19 13:24 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/27/19 21:14 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/27/19 21:14 / dck
Barium	0.043	mg/L		0.003		E200.8	09/27/19 21:14 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/27/19 21:14 / dck
Cadmium	0.00007	mg/L		0.00003		E200.8	09/27/19 21:14 / dck
Chromium	ND	mg/L		0.01		E200.8	09/27/19 21:14 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/27/19 21:14 / dck
Copper	ND	mg/L		0.002		E200.8	09/27/19 21:14 / dck
Iron	ND	mg/L		0.02		E200.8	09/27/19 21:14 / dck
Lead	ND	mg/L		0.0003		E200.8	09/27/19 21:14 / dck
Nickel	ND	mg/L		0.002		E200.8	09/27/19 21:14 / dck
Selenium	ND	mg/L		0.001		E200.8	09/27/19 21:14 / dck
Silver	ND	mg/L		0.0002		E200.8	09/27/19 21:14 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/27/19 21:14 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/27/19 21:14 / dck
Zinc	ND	mg/L		0.008		E200.8	09/27/19 21:14 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 17:08 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 17:08 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-003
Client Sample ID: MW-12

Report Date: 10/17/19
Collection Date: 09/17/19 16:15
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
cis-1,2-Dichloroethene	0.21	ug/L	J	0.50		SW8260B	09/23/19 17:08 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 17:08 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 17:08 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 17:08 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 17:08 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 17:08 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 17:08 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 17:08 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 17:08 / kjw
Surr: 1,2-Dichloroethane-d4	82.0	%REC		70-130		SW8260B	09/23/19 17:08 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/23/19 17:08 / kjw
Surr: p-Bromofluorobenzene	101	%REC		76-127		SW8260B	09/23/19 17:08 / kjw
Surr: Toluene-d8	109	%REC		79-122		SW8260B	09/23/19 17:08 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-004
Client Sample ID: MW-11

Report Date: 10/17/19
Collection Date: 09/17/19 16:53
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	09/24/19 09:26 / SRW
pH Measurement Temp	12.6	°C				A4500-H B	09/24/19 09:26 / SRW
Conductivity @ 25 C	660	umhos/cm		1		A2510 B	09/24/19 09:26 / SRW
INORGANICS							
Chloride	2	mg/L		1		E300.0	09/24/19 14:46 / SRW
Sulfate	48	mg/L		1		E300.0	09/24/19 14:46 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.01		E353.2	09/23/19 13:26 / cmm
METALS, DISSOLVED							
Antimony	0.0006	mg/L		0.0005		E200.8	09/27/19 21:17 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/27/19 21:17 / dck
Barium	0.035	mg/L		0.003		E200.8	09/27/19 21:17 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/27/19 21:17 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/27/19 21:17 / dck
Chromium	ND	mg/L		0.01		E200.8	09/27/19 21:17 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/27/19 21:17 / dck
Copper	ND	mg/L		0.002		E200.8	09/27/19 21:17 / dck
Iron	0.02	mg/L		0.02		E200.8	09/27/19 21:17 / dck
Lead	ND	mg/L		0.0003		E200.8	09/27/19 21:17 / dck
Nickel	ND	mg/L		0.002		E200.8	09/27/19 21:17 / dck
Selenium	ND	mg/L		0.001		E200.8	09/27/19 21:17 / dck
Silver	ND	mg/L		0.0002		E200.8	09/27/19 21:17 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/27/19 21:17 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/27/19 21:17 / dck
Zinc	ND	mg/L		0.008		E200.8	09/27/19 21:17 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 17:40 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 17:40 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Carbon disulfide	0.61	ug/L	J	1.0		SW8260B	09/23/19 17:40 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-004
Client Sample ID: MW-11

Report Date: 10/17/19
Collection Date: 09/17/19 16:53
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 17:40 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 17:40 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 17:40 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 17:40 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 17:40 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 17:40 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 17:40 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 17:40 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 17:40 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 17:40 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 17:40 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 17:40 / kjw
Surr: 1,2-Dichloroethane-d4	83.0	%REC		70-130		SW8260B	09/23/19 17:40 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/23/19 17:40 / kjw
Surr: p-Bromofluorobenzene	100	%REC		76-127		SW8260B	09/23/19 17:40 / kjw
Surr: Toluene-d8	108	%REC		79-122		SW8260B	09/23/19 17:40 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-005
Client Sample ID: MW-HW

Report Date: 10/17/19
Collection Date: 09/17/19 17:42
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/24/19 09:28 / SRW
pH Measurement Temp	12.8	°C				A4500-H B	09/24/19 09:28 / SRW
Conductivity @ 25 C	794	umhos/cm		1		A2510 B	09/24/19 09:28 / SRW
INORGANICS							
Chloride	6	mg/L		1		E300.0	09/24/19 15:01 / SRW
Sulfate	37	mg/L		1		E300.0	09/24/19 15:01 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	09/23/19 13:27 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/27/19 21:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/27/19 21:19 / dck
Barium	0.067	mg/L		0.003		E200.8	09/27/19 21:19 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/27/19 21:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/27/19 21:19 / dck
Chromium	ND	mg/L		0.01		E200.8	09/27/19 21:19 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/27/19 21:19 / dck
Copper	0.015	mg/L		0.002		E200.8	09/27/19 21:19 / dck
Iron	ND	mg/L		0.02		E200.8	09/27/19 21:19 / dck
Lead	ND	mg/L		0.0003		E200.8	09/27/19 21:19 / dck
Nickel	ND	mg/L		0.002		E200.8	09/27/19 21:19 / dck
Selenium	0.009	mg/L		0.001		E200.8	09/27/19 21:19 / dck
Silver	ND	mg/L		0.0002		E200.8	09/27/19 21:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/27/19 21:19 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/27/19 21:19 / dck
Zinc	0.044	mg/L		0.008		E200.8	09/27/19 21:19 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 18:12 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 18:12 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-005
Client Sample ID: MW-HW

Report Date: 10/17/19
Collection Date: 09/17/19 17:42
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 18:12 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 18:12 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 18:12 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 18:12 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 18:12 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 18:12 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 18:12 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 18:12 / kjw
Surr: 1,2-Dichloroethane-d4	83.0	%REC		70-130		SW8260B	09/23/19 18:12 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/23/19 18:12 / kjw
Surr: p-Bromofluorobenzene	102	%REC		76-127		SW8260B	09/23/19 18:12 / kjw
Surr: Toluene-d8	107	%REC		79-122		SW8260B	09/23/19 18:12 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-006
Client Sample ID: MW-HW DUP

Report Date: 10/17/19
Collection Date: 09/17/19 17:42
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	09/24/19 09:30 / SRW
pH Measurement Temp	13.1	°C				A4500-H B	09/24/19 09:30 / SRW
Conductivity @ 25 C	875	umhos/cm		1		A2510 B	09/24/19 09:30 / SRW
INORGANICS							
Chloride	26	mg/L		1		E300.0	09/24/19 17:12 / SRW
Sulfate	37	mg/L		1		E300.0	09/24/19 17:12 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	09/23/19 13:28 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/27/19 21:21 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/27/19 21:21 / dck
Barium	0.071	mg/L		0.003		E200.8	09/27/19 21:21 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/27/19 21:21 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/27/19 21:21 / dck
Chromium	ND	mg/L		0.01		E200.8	09/27/19 21:21 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/27/19 21:21 / dck
Copper	0.007	mg/L		0.002		E200.8	09/27/19 21:21 / dck
Iron	ND	mg/L		0.02		E200.8	09/27/19 21:21 / dck
Lead	ND	mg/L		0.0003		E200.8	09/27/19 21:21 / dck
Nickel	ND	mg/L		0.002		E200.8	09/27/19 21:21 / dck
Selenium	0.001	mg/L		0.001		E200.8	09/27/19 21:21 / dck
Silver	ND	mg/L		0.0002		E200.8	09/27/19 21:21 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/27/19 21:21 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/27/19 21:21 / dck
Zinc	0.019	mg/L		0.008		E200.8	09/27/19 21:21 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 18:44 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 18:44 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Bromodichloromethane	1.2	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Carbon disulfide	0.32	ug/L	J	1.0		SW8260B	09/23/19 18:44 / kjw
Carbon tetrachloride	0.28	ug/L	J	0.50		SW8260B	09/23/19 18:44 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Chlorodibromomethane	0.58	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Chloroform	6.7	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Chloromethane	1.1	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-006
Client Sample ID: MW-HW DUP

Report Date: 10/17/19
Collection Date: 09/17/19 17:42
DateReceived: 09/21/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 18:44 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 18:44 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 18:44 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 18:44 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 18:44 / kjw
Iodomethane	0.87	ug/L	J	1.0		SW8260B	09/23/19 18:44 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 18:44 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 18:44 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 18:44 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 18:44 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 18:44 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 18:44 / kjw
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	09/23/19 18:44 / kjw
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	09/23/19 18:44 / kjw
Surr: p-Bromofluorobenzene	100	%REC		76-127		SW8260B	09/23/19 18:44 / kjw
Surr: Toluene-d8	0	%REC	S	79-122		SW8260B	09/23/19 18:44 / kjw

- -Surrogate recovery is below method recommended limits. Toluene d8 will degrade in samples with residual chlorine present.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-007
Client Sample ID: Trip Blank 8393

Report Date: 10/17/19
Collection Date: 09/17/19 13:38
DateReceived: 09/21/19
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/23/19 13:56 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/23/19 13:56 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 13:56 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/23/19 13:56 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/23/19 13:56 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/23/19 13:56 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/23/19 13:56 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mr. M Landfill
Lab ID: H19090536-007
Client Sample ID: Trip Blank 8393

Report Date: 10/17/19
Collection Date: 09/17/19 13:38
DateReceived: 09/21/19
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/23/19 13:56 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/23/19 13:56 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/23/19 13:56 / kjw
Surr: 1,2-Dichloroethane-d4	83.0	%REC		70-130		SW8260B	09/23/19 13:56 / kjw
Surr: Dibromofluoromethane	94.0	%REC		77-126		SW8260B	09/23/19 13:56 / kjw
Surr: p-Bromofluorobenzene	103	%REC		76-127		SW8260B	09/23/19 13:56 / kjw
Surr: Toluene-d8	108	%REC		79-122		SW8260B	09/23/19 13:56 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-H_190924A	
Lab ID: SC 150	Initial Calibration Verification Standard								09/24/19 09:00	
Conductivity @ 25 C		156	umhos/cm	1.0	104	90	110			
Lab ID: SC 20000	Initial Calibration Verification Standard								09/24/19 09:03	
Conductivity @ 25 C		19600	umhos/cm	1.0	98	90	110			
Lab ID: SC 5000	Initial Calibration Verification Standard								09/24/19 09:05	
Conductivity @ 25 C		4970	umhos/cm	1.0	99	90	110			
Method: A2510 B									Batch: R148050	
Lab ID: SC 1000	Laboratory Control Sample					Run: PHSC_101-H_190924A			09/24/19 09:07	
Conductivity @ 25 C		1010	umhos/cm	1.0	101	90	110			
Lab ID: H19090535-002ADUP	Sample Duplicate					Run: PHSC_101-H_190924A			09/24/19 09:17	
Conductivity @ 25 C		3880	umhos/cm	1.0				0.2	10	
Lab ID: H19090556-009ADUP	Sample Duplicate					Run: PHSC_101-H_190924A			09/24/19 10:00	
Conductivity @ 25 C		439	umhos/cm	1.0				0.4	10	
Lab ID: H19090556-010ADUP	Sample Duplicate					Run: PHSC_101-H_190924A			09/24/19 10:13	
Conductivity @ 25 C		424	umhos/cm	1.0				0.3	10	
Lab ID: H19090558-002ADUP	Sample Duplicate					Run: PHSC_101-H_190924A			09/24/19 10:59	
Conductivity @ 25 C		779	umhos/cm	1.0				0.5	10	
Lab ID: H19090558-003ADUP	Sample Duplicate					Run: PHSC_101-H_190924A			09/24/19 11:12	
Conductivity @ 25 C		794	umhos/cm	1.0				0.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-H_190924A	
Lab ID: pH 7	2	Initial Calibration Verification Standard							09/24/19 08:55	
pH		7.0	s.u.	0.1	100	98	102			
pH Measurement Temp		20.5	°C			0	0			
Method: A4500-H B									Batch: R148050	
Lab ID: H19090535-002ADUP	2	Sample Duplicate				Run: PHSC_101-H_190924A			09/24/19 09:17	
pH		7.0	s.u.	0.1				0.0	3	
pH Measurement Temp		11.4	°C							
Lab ID: H19090556-009ADUP	2	Sample Duplicate				Run: PHSC_101-H_190924A			09/24/19 10:00	
pH		7.8	s.u.	0.1				0.1	3	
pH Measurement Temp		13.0	°C							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS205-H_190927C	
Lab ID: ICV	16	Initial Calibration Verification Standard							09/27/19 13:32	
Antimony		0.0577	mg/L	0.050	96	90	110			
Arsenic		0.0582	mg/L	0.0050	97	90	110			
Barium		0.0587	mg/L	0.10	98	90	110			
Beryllium		0.0288	mg/L	0.0010	96	90	110			
Cadmium		0.0300	mg/L	0.0010	100	90	110			
Chromium		0.0592	mg/L	0.010	99	90	110			
Cobalt		0.0598	mg/L	0.010	100	90	110			
Copper		0.0590	mg/L	0.010	98	90	110			
Iron		0.297	mg/L	0.020	99	90	110			
Lead		0.0591	mg/L	0.010	98	90	110			
Nickel		0.0595	mg/L	0.010	99	90	110			
Selenium		0.0591	mg/L	0.0050	98	90	110			
Silver		0.0305	mg/L	0.0050	102	90	110			
Thallium		0.0588	mg/L	0.10	98	90	110			
Vanadium		0.0580	mg/L	0.10	97	90	110			
Zinc		0.0610	mg/L	0.010	102	90	110			
Lab ID: ICSA	16	Interference Check Sample A							09/27/19 13:34	
Antimony		0.000230	mg/L	0.050						
Arsenic		4.18E-05	mg/L	0.0050						
Barium		0.000172	mg/L	0.10						
Beryllium		5.77E-06	mg/L	0.0010						
Cadmium		8.39E-05	mg/L	0.0010						
Chromium		0.000243	mg/L	0.010						
Cobalt		0.000261	mg/L	0.010						
Copper		4.54E-05	mg/L	0.010						
Iron		98.4	mg/L	0.020	98	70	130			
Lead		8.54E-05	mg/L	0.010						
Nickel		-0.000108	mg/L	0.010						
Selenium		0.000101	mg/L	0.0050						
Silver		6.93E-05	mg/L	0.0050						
Thallium		4.01E-05	mg/L	0.10						
Vanadium		-5.65E-05	mg/L	0.10						
Zinc		0.000266	mg/L	0.010						
Lab ID: ICSAB	16	Interference Check Sample AB							09/27/19 13:36	
Antimony		0.000201	mg/L	0.050		0	0			
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Barium		0.000188	mg/L	0.10		0	0			
Beryllium		6.58E-06	mg/L	0.0010		0	0			
Cadmium		0.01000	mg/L	0.0010	100	70	130			
Chromium		0.0202	mg/L	0.010	101	70	130			
Cobalt		0.0201	mg/L	0.010	101	70	130			
Copper		0.0198	mg/L	0.010	99	70	130			
Iron		102	mg/L	0.020	102	70	130			
Lead		9.95E-05	mg/L	0.010		0	0			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS205-H_190927C	
Lab ID: ICSAB	16	Interference Check Sample AB							09/27/19 13:36	
Nickel		0.0198	mg/L	0.010	99	70	130			
Selenium		0.00996	mg/L	0.0050	100	70	130			
Silver		0.00514	mg/L	0.0050	103	70	130			
Thallium		2.78E-05	mg/L	0.10		0	0			
Vanadium		0.0200	mg/L	0.10	100	70	130			
Zinc		0.0107	mg/L	0.010	107	70	130			
Method: E200.8									Batch: R148200	
Lab ID: LRB	16	Method Blank				Run: ICPMS205-H_190927C			09/27/19 14:38	
Antimony		ND	mg/L	9E-05						
Arsenic		ND	mg/L	4E-05						
Barium		ND	mg/L	2E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	9E-05						
Copper		ND	mg/L	0.0001						
Iron		ND	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	2E-05						
Thallium		ND	mg/L	1E-05						
Vanadium		ND	mg/L	7E-05						
Zinc		0.0005	mg/L	0.0003						
Lab ID: LFB	16	Laboratory Fortified Blank				Run: ICPMS205-H_190927C			09/27/19 14:41	
Antimony		0.0496	mg/L	0.050	99	85	115			
Arsenic		0.0485	mg/L	0.0050	97	85	115			
Barium		0.0484	mg/L	0.10	97	85	115			
Beryllium		0.0470	mg/L	0.0010	94	85	115			
Cadmium		0.0496	mg/L	0.0010	99	85	115			
Chromium		0.0485	mg/L	0.010	97	85	115			
Cobalt		0.0489	mg/L	0.010	98	85	115			
Copper		0.0490	mg/L	0.010	98	85	115			
Iron		0.146	mg/L	0.020	97	85	115			
Lead		0.0480	mg/L	0.010	96	85	115			
Nickel		0.0491	mg/L	0.010	98	85	115			
Selenium		0.0488	mg/L	0.0050	98	85	115			
Silver		0.0204	mg/L	0.0050	102	85	115			
Thallium		0.0475	mg/L	0.10	95	85	115			
Vanadium		0.0481	mg/L	0.10	96	85	115			
Zinc		0.0503	mg/L	0.010	101	85	115			
Lab ID: H19090536-003BMS	16	Sample Matrix Spike				Run: ICPMS205-H_190927C			09/27/19 21:26	
Antimony		0.0484	mg/L	0.0010	96	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R148200
Lab ID: H19090536-003BMS	16 Sample Matrix Spike					Run: ICPMS205-H_190927C				09/27/19 21:26
Arsenic		0.0496	mg/L	0.0010	98	70	130			
Barium		0.0891	mg/L	0.050	91	70	130			
Beryllium		0.0450	mg/L	0.0010	90	70	130			
Cadmium		0.0483	mg/L	0.0010	97	70	130			
Chromium		0.0475	mg/L	0.0050	95	70	130			
Cobalt		0.0470	mg/L	0.0050	94	70	130			
Copper		0.0468	mg/L	0.0050	93	70	130			
Iron		0.140	mg/L	0.020	93	70	130			
Lead		0.0478	mg/L	0.0010	96	70	130			
Nickel		0.0478	mg/L	0.0050	94	70	130			
Selenium		0.0532	mg/L	0.0010	106	70	130			
Silver		0.0200	mg/L	0.0010	100	70	130			
Thallium		0.0481	mg/L	0.00050	96	70	130			
Vanadium		0.0480	mg/L	0.010	96	70	130			
Zinc		0.0532	mg/L	0.010	91	70	130			
Lab ID: H19090536-003BMSD	16 Sample Matrix Spike Duplicate					Run: ICPMS205-H_190927C				09/27/19 21:28
Antimony		0.0479	mg/L	0.0010	95	70	130	1.1	20	
Arsenic		0.0498	mg/L	0.0010	99	70	130	0.5	20	
Barium		0.0904	mg/L	0.050	94	70	130	1.4	20	
Beryllium		0.0439	mg/L	0.0010	88	70	130	2.7	20	
Cadmium		0.0483	mg/L	0.0010	96	70	130	0.1	20	
Chromium		0.0472	mg/L	0.0050	94	70	130	0.6	20	
Cobalt		0.0471	mg/L	0.0050	94	70	130	0.3	20	
Copper		0.0461	mg/L	0.0050	92	70	130	1.5	20	
Iron		0.140	mg/L	0.020	93	70	130	0.2	20	
Lead		0.0470	mg/L	0.0010	94	70	130	1.7	20	
Nickel		0.0471	mg/L	0.0050	93	70	130	1.4	20	
Selenium		0.0522	mg/L	0.0010	104	70	130	2.0	20	
Silver		0.0200	mg/L	0.0010	100	70	130	0.1	20	
Thallium		0.0472	mg/L	0.00050	95	70	130	1.8	20	
Vanadium		0.0471	mg/L	0.010	94	70	130	1.9	20	
Zinc		0.0536	mg/L	0.010	92	70	130	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC METROHM_190924A	
Lab ID: ICV	2	Initial Calibration Verification Standard							09/24/19 12:07	
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		402	mg/L	1.0	100	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard							09/24/19 12:50	
Chloride		52.3	mg/L	1.0	105	90	110			
Sulfate		211	mg/L	1.0	105	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard							09/24/19 16:28	
Chloride		53.0	mg/L	1.0	106	90	110			
Sulfate		214	mg/L	1.0	107	90	110			
Method: E300.0									Batch: R148102	
Lab ID: ICB	2	Method Blank				Run: IC METROHM_190924A			09/24/19 11:52	
Chloride		ND	mg/L	0.02						
Sulfate		ND	mg/L	0.08						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC METROHM_190924A			09/24/19 12:21	
Chloride		25.4	mg/L	1.0	101	90	110			
Sulfate		105	mg/L	1.0	105	90	110			
Lab ID: H19090551-001AMS	2	Sample Matrix Spike				Run: IC METROHM_190924A			09/24/19 15:59	
Chloride		37.3	mg/L	1.0	104	90	110			
Sulfate		152	mg/L	1.0	104	90	110			
Lab ID: H19090551-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC METROHM_190924A			09/24/19 16:14	
Chloride		37.4	mg/L	1.0	105	90	110	0.3	20	
Sulfate		153	mg/L	1.0	104	90	110	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2										Analytical Run: FIA203-HE_190923B
Lab ID: ICV		Initial Calibration Verification Standard								09/23/19 10:41
Nitrogen, Nitrate+Nitrite as N		0.999	mg/L	0.010	100	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								09/23/19 13:12
Nitrogen, Nitrate+Nitrite as N		0.497	mg/L	0.010	99	90	110			
Method: E353.2										Batch: R148032
Lab ID: MBLK		Method Blank				Run: FIA203-HE_190923B				09/23/19 10:42
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-HE_190923B				09/23/19 10:43
Nitrogen, Nitrate+Nitrite as N		0.997	mg/L	0.011	100	90	110			
Lab ID: H19090526-003DMS		Sample Matrix Spike				Run: FIA203-HE_190923B				09/23/19 13:16
Nitrogen, Nitrate+Nitrite as N		1.12	mg/L	0.011	96	90	110			
Lab ID: H19090526-003DMSD		Sample Matrix Spike Duplicate				Run: FIA203-HE_190923B				09/23/19 13:17
Nitrogen, Nitrate+Nitrite as N		1.13	mg/L	0.011	97	90	110	1.0	10	
Lab ID: H19090541-021CMS		Sample Matrix Spike				Run: FIA203-HE_190923B				09/23/19 13:33
Nitrogen, Nitrate+Nitrite as N		14.0	mg/L	0.11	97	90	110			
Lab ID: H19090541-021CMSD		Sample Matrix Spike Duplicate				Run: FIA203-HE_190923B				09/23/19 13:34
Nitrogen, Nitrate+Nitrite as N		13.8	mg/L	0.11	94	90	110	1.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R148011	
Lab ID: 23-Sep-19_CCV_3	54	Continuing Calibration Verification Standard							09/23/19 10:28	
trans-1,4-Dichloro-2-butene		3.92	ug/L	0.50	78	70	130			
Acetone		39.1	ug/L	10	78	70	130			
Acrylonitrile		42.3	ug/L	20	85	70	130			
Benzene		5.58	ug/L	0.50	112	70	130			
Bromochloromethane		5.02	ug/L	0.50	100	70	130			
Bromodichloromethane		5.10	ug/L	0.50	102	70	130			
Bromoform		5.45	ug/L	0.50	109	70	130			
Bromomethane		5.77	ug/L	0.50	115	70	130			
Carbon disulfide		5.77	ug/L	0.50	115	70	130			
Carbon tetrachloride		5.35	ug/L	0.50	107	70	130			
Chlorobenzene		5.88	ug/L	0.50	118	70	130			
Chlorodibromomethane		5.24	ug/L	0.50	105	70	130			
Chloroethane		5.62	ug/L	0.50	112	70	130			
Chloroform		4.89	ug/L	0.50	98	80	120			
Chloromethane		4.79	ug/L	0.50	96	70	130			
1,2-Dibromo-3-chloropropane		4.16	ug/L	0.50	83	70	130			
1,2-Dibromoethane		5.13	ug/L	0.50	103	70	130			
Dibromomethane		4.89	ug/L	0.50	98	70	130			
1,2-Dichlorobenzene		5.37	ug/L	0.50	107	70	130			
1,4-Dichlorobenzene		5.47	ug/L	0.50	109	70	130			
Dichlorodifluoromethane		5.15	ug/L	0.50	103	70	130			
1,1-Dichloroethane		5.18	ug/L	0.50	104	70	130			
1,2-Dichloroethane		4.11	ug/L	0.50	82	70	130			
1,1-Dichloroethene		5.69	ug/L	0.50	114	80	120			
cis-1,2-Dichloroethene		5.30	ug/L	0.50	106	70	130			
trans-1,2-Dichloroethene		5.69	ug/L	0.50	114	70	130			
1,2-Dichloropropane		5.52	ug/L	0.50	110	80	120			
cis-1,3-Dichloropropene		5.40	ug/L	0.50	108	70	130			
trans-1,3-Dichloropropene		5.14	ug/L	0.50	103	70	130			
Ethylbenzene		6.01	ug/L	0.50	120	80	120			
2-Hexanone		41.6	ug/L	10	83	70	130			
Iodomethane		5.42	ug/L	0.50	108	70	130			
Methyl ethyl ketone		38.9	ug/L	10	78	70	130			
Methyl isobutyl ketone		41.0	ug/L	10	82	70	130			
Methylene chloride		4.30	ug/L	0.50	86	70	130			
Styrene		5.88	ug/L	0.50	118	70	130			
1,1,1,2-Tetrachloroethane		5.54	ug/L	0.50	111	70	130			
1,1,2,2-Tetrachloroethane		4.89	ug/L	0.50	98	70	130			
Tetrachloroethene		6.31	ug/L	0.50	126	70	130			
Toluene		6.14	ug/L	0.50	123	80	120			S
1,1,1-Trichloroethane		5.22	ug/L	0.50	104	70	130			
1,1,2-Trichloroethane		5.13	ug/L	0.50	103	70	130			
Trichloroethene		5.93	ug/L	0.50	119	70	130			
Trichlorofluoromethane		4.88	ug/L	0.50	98	70	130			
1,2,3-Trichloropropane		4.82	ug/L	0.50	96	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Analytical Run: R148011
Lab ID: 23-Sep-19_CCV_3	54	Continuing Calibration Verification Standard								09/23/19 10:28
Vinyl acetate		4.13	ug/L	0.50	83	70	130			
Vinyl chloride		5.50	ug/L	0.50	110	80	120			
m+p-Xylenes		12.3	ug/L	0.50	123	70	130			
o-Xylene		6.03	ug/L	0.50	121	70	130			
Xylenes, Total		18.4	ug/L	0.50	122	70	130			
Surr: 1,2-Dichloroethane-d4				1.0	79	69	131			
Surr: Dibromofluoromethane				1.0	94	70	125			
Surr: p-Bromofluorobenzene				1.0	99	76	123			
Surr: Toluene-d8				1.0	111	80	119			
Method: SW8260B										Batch: R148011
Lab ID: 23-Sep-19_LCS_5	54	Laboratory Control Sample				Run: 5973MSD_190923A				09/23/19 11:45
trans-1,4-Dichloro-2-butene		3.66	ug/L	0.50	73	67	127			
Acetone		31.9	ug/L	10	64	37	119			
Acrylonitrile		35.0	ug/L	20	70	56	131			
Benzene		5.31	ug/L	0.50	106	79	116			
Bromochloromethane		4.81	ug/L	0.50	96	65	129			
Bromodichloromethane		4.79	ug/L	0.50	96	75	113			
Bromoform		4.76	ug/L	0.50	95	65	130			
Bromomethane		5.49	ug/L	0.50	110	51	136			
Carbon disulfide		5.04	ug/L	0.50	101	58	128			
Carbon tetrachloride		5.04	ug/L	0.50	101	76	125			
Chlorobenzene		5.58	ug/L	0.50	112	77	127			
Chlorodibromomethane		5.01	ug/L	0.50	100	70	122			
Chloroethane		5.22	ug/L	0.50	104	62	135			
Chloroform		4.77	ug/L	0.50	95	69	119			
Chloromethane		4.67	ug/L	0.50	93	64	152			
1,2-Dibromo-3-chloropropane		4.09	ug/L	0.50	82	66	112			
1,2-Dibromoethane		5.02	ug/L	0.50	100	68	116			
Dibromomethane		4.66	ug/L	0.50	93	69	118			
1,2-Dichlorobenzene		5.08	ug/L	0.50	102	74	122			
1,4-Dichlorobenzene		5.21	ug/L	0.50	104	70	116			
Dichlorodifluoromethane		4.93	ug/L	0.50	99	45	152			
1,1-Dichloroethane		4.94	ug/L	0.50	99	80	123			
1,2-Dichloroethane		4.03	ug/L	0.50	81	59	126			
1,1-Dichloroethene		5.45	ug/L	0.50	109	84	134			
cis-1,2-Dichloroethene		5.26	ug/L	0.50	105	78	119			
trans-1,2-Dichloroethene		5.51	ug/L	0.50	110	81	122			
1,2-Dichloropropane		5.29	ug/L	0.50	106	81	121			
cis-1,3-Dichloropropene		5.45	ug/L	0.50	109	82	121			
trans-1,3-Dichloropropene		4.79	ug/L	0.50	96	69	120			
Ethylbenzene		5.67	ug/L	0.50	113	74	125			
2-Hexanone		39.8	ug/L	10	80	58	119			
Iodomethane		4.15	ug/L	0.50	83	34	128			
Methyl ethyl ketone		36.1	ug/L	10	72	63	125			
Methyl isobutyl ketone		40.3	ug/L	10	81	67	124			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R148011
Lab ID: 23-Sep-19_LCS_5	54	Laboratory Control Sample				Run: 5973MSD_190923A				09/23/19 11:45
Methylene chloride		4.38	ug/L	0.50	88	69	130			
Styrene		5.61	ug/L	0.50	112	75	120			
1,1,1,2-Tetrachloroethane		5.26	ug/L	0.50	105	76	122			
1,1,2,2-Tetrachloroethane		4.64	ug/L	0.50	93	67	124			
Tetrachloroethene		6.08	ug/L	0.50	122	81	125			
Toluene		5.85	ug/L	0.50	117	82	121			
1,1,1-Trichloroethane		5.10	ug/L	0.50	102	81	130			
1,1,2-Trichloroethane		5.18	ug/L	0.50	104	72	115			
Trichloroethene		5.74	ug/L	0.50	115	72	126			
Trichlorofluoromethane		4.49	ug/L	0.50	90	85	137			
1,2,3-Trichloropropane		4.82	ug/L	0.50	96	62	118			
Vinyl acetate		4.62	ug/L	0.50	92	72	148			
Vinyl chloride		5.37	ug/L	0.50	107	81	143			
m+p-Xylenes		11.6	ug/L	0.50	116	84	122			
o-Xylene		5.66	ug/L	0.50	113	82	121			
Xylenes, Total		17.3	ug/L	0.50	115	72	124			
Surr: 1,2-Dichloroethane-d4				1.0	79	69	131			
Surr: Dibromofluoromethane				1.0	94	70	125			
Surr: p-Bromofluorobenzene				1.0	98	76	123			
Surr: Toluene-d8				1.0	110	80	119			
Lab ID: 23-Sep-19_MBLK_7	54	Method Blank				Run: 5973MSD_190923A				09/23/19 12:52
trans-1,4-Dichloro-2-butene		ND	ug/L	0.50						
Acetone		ND	ug/L	10						
Acrylonitrile		ND	ug/L	20						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	0.50						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R148011
Lab ID: 23-Sep-19_MBLK_7	54 Method Blank					Run: 5973MSD_190923A				09/23/19 12:52
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.50						
trans-1,3-Dichloropropene		ND	ug/L	0.50						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	10						
Iodomethane		ND	ug/L	0.50						
Methyl ethyl ketone		ND	ug/L	10						
Methyl isobutyl ketone		ND	ug/L	10						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.50						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	0.50						
Vinyl chloride		ND	ug/L	0.50						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Xylenes, Total		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				1.0	83	69	131			
Surr: Dibromofluoromethane				1.0	96	70	125			
Surr: p-Bromofluorobenzene				1.0	100	76	123			
Surr: Toluene-d8				1.0	109	80	119			
Lab ID: H19090536-001CMS	54 Sample Matrix Spike					Run: 5973MSD_190923A				09/23/19 19:48
trans-1,4-Dichloro-2-butene		6.27	ug/L	1.0	63	67	127			S
Acetone		69.5	ug/L	20	70	37	119			
Acrylonitrile		77.4	ug/L	40	77	56	131			
Benzene		11.1	ug/L	0.50	111	79	116			
Bromochloromethane		10.1	ug/L	0.50	101	65	129			
Bromodichloromethane		10.1	ug/L	0.50	101	75	113			
Bromoform		10.1	ug/L	0.50	101	65	130			
Bromomethane		6.72	ug/L	0.50	67	51	136			
Carbon disulfide		9.91	ug/L	0.50	99	58	128			
Carbon tetrachloride		10.4	ug/L	0.50	104	76	125			
Chlorobenzene		11.6	ug/L	0.50	116	77	127			
Chlorodibromomethane		10.5	ug/L	0.50	105	70	122			
Chloroethane		9.94	ug/L	0.50	99	62	135			
Chloroform		10.2	ug/L	0.50	102	69	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R148011
Lab ID: H19090536-001CMS	54 Sample Matrix Spike					Run: 5973MSD_190923A				09/23/19 19:48
Chloromethane		8.27	ug/L	0.50	83	64	152			
1,2-Dibromo-3-chloropropane		9.00	ug/L	1.0	90	66	112			
1,2-Dibromoethane		10.6	ug/L	0.50	106	68	116			
Dibromomethane		10.1	ug/L	0.50	101	69	118			
1,2-Dichlorobenzene		10.6	ug/L	0.50	106	74	122			
1,4-Dichlorobenzene		10.9	ug/L	0.50	109	70	116			
Dichlorodifluoromethane		9.47	ug/L	0.50	92	45	152			
1,1-Dichloroethane		10.3	ug/L	0.50	103	80	123			
1,2-Dichloroethane		8.57	ug/L	0.50	86	59	126			
1,1-Dichloroethene		11.4	ug/L	0.50	114	84	134			
cis-1,2-Dichloroethene		12.8	ug/L	0.50	108	78	119			
trans-1,2-Dichloroethene		11.3	ug/L	0.50	113	81	122			
1,2-Dichloropropane		11.2	ug/L	0.50	112	81	121			
cis-1,3-Dichloropropene		11.0	ug/L	0.50	110	82	121			
trans-1,3-Dichloropropene		9.90	ug/L	0.50	99	69	120			
Ethylbenzene		11.6	ug/L	0.50	116	74	125			
2-Hexanone		83.9	ug/L	20	84	58	119			
Iodomethane		5.10	ug/L	0.50	51	34	128			
Methyl ethyl ketone		77.3	ug/L	20	77	63	125			
Methyl isobutyl ketone		84.8	ug/L	20	85	67	124			
Methylene chloride		9.21	ug/L	1.0	92	69	130			
Styrene		11.5	ug/L	0.50	115	75	120			
1,1,1,2-Tetrachloroethane		10.7	ug/L	0.50	107	76	122			
1,1,2,2-Tetrachloroethane		10.1	ug/L	0.50	101	67	124			
Tetrachloroethene		12.9	ug/L	0.50	121	81	125			
Toluene		12.0	ug/L	0.50	120	82	121			
1,1,1-Trichloroethane		10.4	ug/L	0.50	104	81	130			
1,1,2-Trichloroethane		10.7	ug/L	0.50	107	72	115			
Trichloroethene		11.7	ug/L	0.50	117	72	126			
Trichlorofluoromethane		8.60	ug/L	0.50	86	85	137			
1,2,3-Trichloropropane		10.4	ug/L	0.50	104	62	118			
Vinyl acetate		9.26	ug/L	0.50	93	72	148			
Vinyl chloride		9.80	ug/L	0.50	98	81	143			
m+p-Xylenes		23.8	ug/L	1.0	119	84	122			
o-Xylene		11.8	ug/L	0.50	118	82	121			
Xylenes, Total		35.5	ug/L	0.50	118	72	124			
Surr: 1,2-Dichloroethane-d4				2.0	83	69	131			
Surr: Dibromofluoromethane				2.0	96	70	125			
Surr: p-Bromofluorobenzene				2.0	99	76	123			
Surr: Toluene-d8				2.0	109	80	119			
Lab ID: H19090536-001CMSD	54 Sample Matrix Spike Duplicate					Run: 5973MSD_190923A				09/23/19 20:20
trans-1,4-Dichloro-2-butene		6.77	ug/L	1.0	68	67	127	7.7	20	
Acetone		74.4	ug/L	20	74	37	119	6.7	20	
Acrylonitrile		83.4	ug/L	40	83	56	131	7.5	20	
Benzene		11.2	ug/L	0.50	112	79	116	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R148011
Lab ID: H19090536-001CMSD	54	Sample Matrix Spike Duplicate				Run: 5973MSD_190923A				09/23/19 20:20
Bromochloromethane		10.5	ug/L	0.50	105	65	129	3.7	20	
Bromodichloromethane		10.1	ug/L	0.50	101	75	113	0.3	20	
Bromoform		10.2	ug/L	0.50	102	65	130	1.1	20	
Bromomethane		8.78	ug/L	0.50	88	51	136	27	20	R
Carbon disulfide		9.84	ug/L	0.50	98	58	128	0.7	20	
Carbon tetrachloride		10.3	ug/L	0.50	103	76	125	1.2	20	
Chlorobenzene		11.5	ug/L	0.50	115	77	127	0.9	20	
Chlorodibromomethane		10.4	ug/L	0.50	104	70	122	0.7	20	
Chloroethane		10.3	ug/L	0.50	103	62	135	3.3	20	
Chloroform		10.2	ug/L	0.50	102	69	119	0.5	20	
Chloromethane		8.52	ug/L	0.50	85	64	152	3.0	20	
1,2-Dibromo-3-chloropropane		8.98	ug/L	1.0	90	66	112	0.2	20	
1,2-Dibromoethane		10.7	ug/L	0.50	107	68	116	1.3	20	
Dibromomethane		10.2	ug/L	0.50	102	69	118	1.6	20	
1,2-Dichlorobenzene		10.9	ug/L	0.50	109	74	122	3.5	20	
1,4-Dichlorobenzene		11.1	ug/L	0.50	111	70	116	1.8	20	
Dichlorodifluoromethane		9.58	ug/L	0.50	93	45	152	1.2	20	
1,1-Dichloroethane		10.5	ug/L	0.50	105	80	123	1.3	20	
1,2-Dichloroethane		8.78	ug/L	0.50	88	59	126	2.4	20	
1,1-Dichloroethene		11.2	ug/L	0.50	112	84	134	1.1	20	
cis-1,2-Dichloroethene		12.7	ug/L	0.50	106	78	119	0.8	20	
trans-1,2-Dichloroethene		11.2	ug/L	0.50	112	81	122	1.2	20	
1,2-Dichloropropane		11.3	ug/L	0.50	113	81	121	0.1	20	
cis-1,3-Dichloropropene		11.1	ug/L	0.50	111	82	121	1.0	20	
trans-1,3-Dichloropropene		10.0	ug/L	0.50	100	69	120	1.1	20	
Ethylbenzene		11.5	ug/L	0.50	115	74	125	0.7	20	
2-Hexanone		88.8	ug/L	20	89	58	119	5.6	20	
Iodomethane		6.43	ug/L	0.50	64	34	128	23	20	R
Methyl ethyl ketone		83.1	ug/L	20	83	63	125	7.2	20	
Methyl isobutyl ketone		90.6	ug/L	20	91	67	124	6.5	20	
Methylene chloride		9.40	ug/L	1.0	94	69	130	2.0	20	
Styrene		11.6	ug/L	0.50	116	75	120	1.1	20	
1,1,1,2-Tetrachloroethane		10.9	ug/L	0.50	109	76	122	1.5	20	
1,1,2,2-Tetrachloroethane		10.2	ug/L	0.50	102	67	124	1.4	20	
Tetrachloroethene		12.7	ug/L	0.50	119	81	125	1.3	20	
Toluene		11.9	ug/L	0.50	119	82	121	1.4	20	
1,1,1-Trichloroethane		10.4	ug/L	0.50	104	81	130	0.1	20	
1,1,2-Trichloroethane		11.1	ug/L	0.50	111	72	115	4.1	20	
Trichloroethene		11.6	ug/L	0.50	116	72	126	0.9	20	
Trichlorofluoromethane		8.74	ug/L	0.50	87	85	137	1.6	20	
1,2,3-Trichloropropane		10.3	ug/L	0.50	103	62	118	0.8	20	
Vinyl acetate		9.77	ug/L	0.50	98	72	148	5.5	20	
Vinyl chloride		10.0	ug/L	0.50	100	81	143	2.4	20	
m+p-Xylenes		23.6	ug/L	1.0	118	84	122	0.5	20	
o-Xylene		11.7	ug/L	0.50	117	82	121	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section **Work Order:** H19090536 **Report Date:** 10/17/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **SW8260B**										Batch: R148011
Lab ID: **H19090536-001CMSD**	54	Sample Matrix Spike Duplicate				Run: 5973MSD_190923A				09/23/19 20:20
Xylenes, Total		35.4	ug/L	0.50	118	72	124	0.4	20	
Surr: 1,2-Dichloroethane-d4				2.0	84	69	131			
Surr: Dibromofluoromethane				2.0	96	70	125			
Surr: p-Bromofluorobenzene				2.0	100	76	123			
Surr: Toluene-d8				2.0	108	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT-DEQ Solid Waste Section

H19090536

Login completed by: Jessica C. Smith
Reviewed by: BL2000\rtooke
Reviewed Date: 9/24/2019

Date Received: 9/21/2019
Received by: JCS
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.6°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Samples were left in locked entryway. No ID, date, or time on 500mL bottle in sample set MW-9R. Used ID, date, and time from COC. Samples MW-12, MW-11, MW-HW and MW-HW DUP for Dissolved Metals were subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. Nutrients sample MW-HW was preserved to pH <2 with 2 mL of sulfuric acid per 250 mL in the laboratory upon receipt. JCS 09/21/19

Hg on hold per client phone call. Client woudl like pH and full list of landfill metals. JCS 09/23/19

Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

WLTMTB

Account Information (Billing information)

Company/Name	DEQ/Solid Waste Program
Contact	Mike Eder
Phone	406-444-1434 / 805-291-7719
Mailing Address	PO Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	mike.eder@mt.gov
Receive Invoice	X Hard Copy X Email
Receive Report	☐ Hard Copy X Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐ Hard Copy ☐ Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Metals samples need to be filtered in Lab

Project Information

Project Name, PWSID, Permit, etc.	Mr. M Landfill
Sampler Name	Mike Eder
Sampler Phone	444-1434
Sample Origin State	MT
EPA/State Compliance	X Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	4250B Anions E300.0 Conduct.	Metals Dissolved Mercury	Nitrogen (nitrate+Nitrite)	8260 VOCs	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MW-9R	9/17/19	13:38	5	W	X		X	X			N19090536
2	MW-OW		15:10	4		X		X	X			
3	MW-12		16:15	6		X	X	X	X			
4	MW-11		16:53	6								
5	MW-HW		17:42	6								
6	MW-HW DUP		17:42	6								
7												
8												
9												
10												

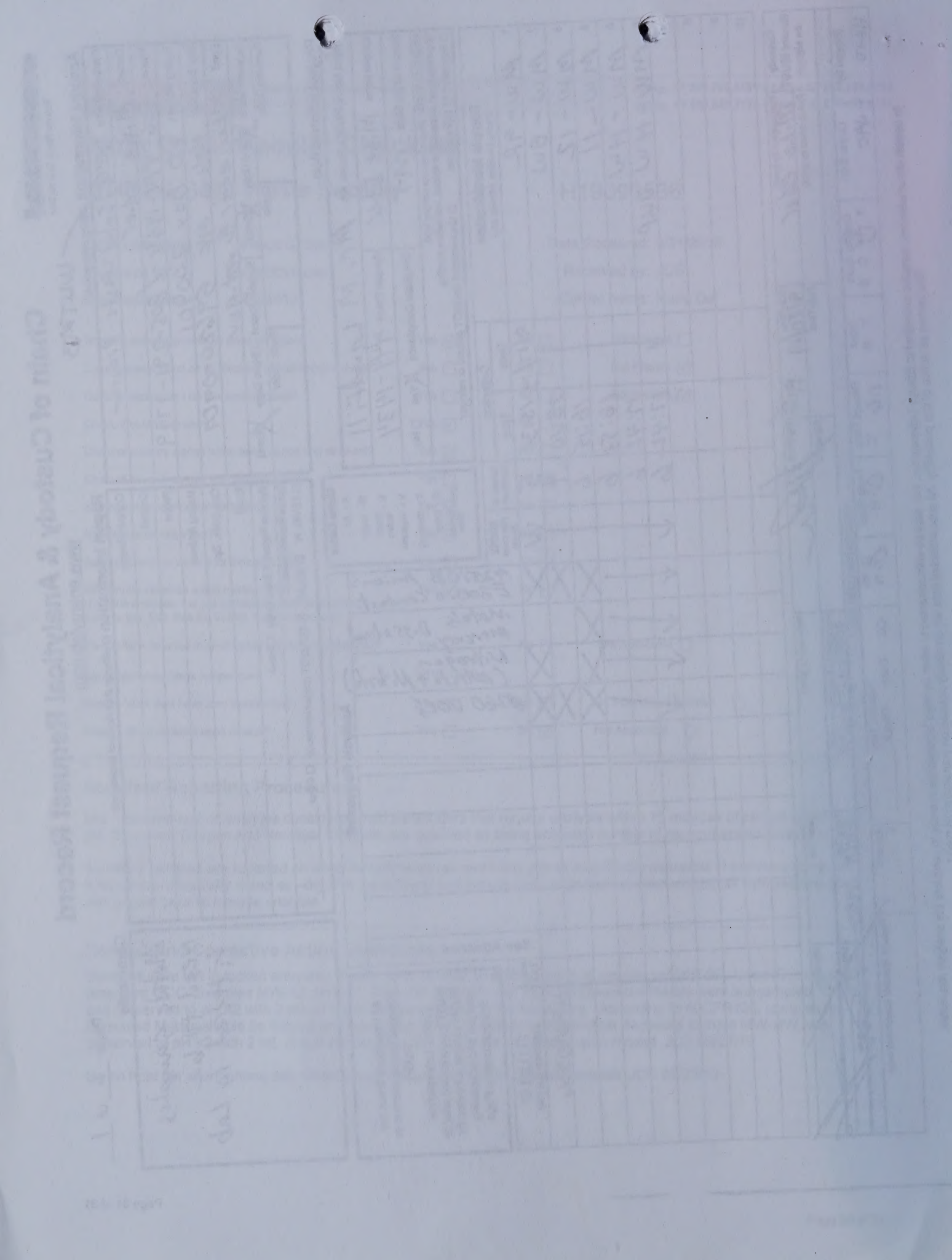
Analysis Requested

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Mike Eder	9/20/19 19:05				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				[illegible]	9/21/19 09:33	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
HAND	490	Y N C B	Y N	1.6 °C	Y N	Y N	CC Cash Check	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



County Fergus

Facility & # 302

Closure	Landfarm
Finan Assur	Liner
GW Corr Meas	Methane
GW Monitoring	O & M
GW Reports	Run-on
Inspections	

Other: _____

Monitoring Well Purging and Sampling Form

Site Name: Mister M LF Sample Location: MW-12

Personnel: JC Sample ID: SAA

Date: 7-25-18 Field Conditions: Pt. cldy 70° WH

Condition of Well: Good

Depth to Water (DTW): 0.34' Total Depth of Well (TD): 102

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: 50 gal

Purge Equipment: Disp-Bailer Pump Depth: Start Time: 1053

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1121	10	—	—	6-23	876	18	-30.6	2.63		
1130	15	—	—	5.80	793	16.6	10.8	2.09		
1135	20	—	—	5.79	797	13.3	19.9	2.41		
1140	22	—	—	5.89	797	11.87	19.2	~~5.8~~	2.90	

Sample Time: Sampling Method: SAA

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals - w.f. field filtered.	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: 23 Final Depth to Water: End Time: 1210

Notes: YSI calibration 1413 - ~~Spcond~~ sp cond = 1791
pH 7 = 6.89

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Miska M. Sample Location: Lamson

Personnel: JC Sample ID: MW-11

Date: 7-25-18 Field Conditions: pt. sunny 70's

Condition of Well: Good

Depth to Water (DTW): 37' Total Depth of Well (TD): 82

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: _____ Three Well Volumes: 24

Purge Equipment: Disposable Bailer Pump Depth: — Start Time: 1205

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1205	5		—	6.24	716	15.13	-63.3	2.10		
1220	10		—	6.17	742	10.68	-27.2	3.01		
1235	15			6.20	743	10.28	-36.5	3.57		

Sample Time: 1245 Sampling Method: SAP

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: 20 Final Depth to Water: _____ End Time: 1255

Notes: _____

Sampler Signature: _____

Monitoring Well Purging and Sampling Form

Site Name: Mister m LF Sample Location: Lewistown

Personnel: JC Sample ID: MW-9R

Date: 7-25-18 Field Conditions: sunny 70's

Condition of Well: Good

Depth to Water (DTW): 39.20 Total Depth of Well (TD):

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: Disp Bailer Pump Depth: Start Time: 1350

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1345	2	-	-	6.23	~~1299~~ 1098	12.76	1088	3.30		
1350	4	-		6.32	1093	10.46	-51.8	4.12		Going Dry

Sample Time: 1400 Sampling Method: SAA

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time: 1410

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mishi M LF Sample Location: MW-OW

Personnel: JC Sample ID:

Date: 7-25-18 Field Conditions: pd. Sunny 70's

Condition of Well:

Depth to Water (DTW): 25.5' Total Depth of Well (TD):

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: NA/L Stabilization

Purge Equipment: Disposable Bailer Pump Depth: Start Time: 1420

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1430	5	—	(5.89)	6.50	715	11.15	197.7	3.96		
1440	10			5.89	713	10.65	300.1	3.36		
1445	20		6.03		713	10.72	300	3.06		

Sample Time: 1450 Sampling Method: SAA

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time: 1455

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mishmash LF Sample Location: Henrewell

Personnel: JC Sample ID:

Date: 7-25-18 Field Conditions:

Condition of Well:

Depth to Water (DTW): Total Depth of Well (TD):

Well Diameter: Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: Pump Depth: Start Time:

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments

Sample Time: 1515 Sampling Method:

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Whitehaven Sample Location: MW-12

Personnel: JZ Sample ID: MW-12

Date: 6-14-17 Field Conditions: Rain 70's

Condition of Well: Good

Depth to Water (DTW): 12.16 Total Depth of Well (TD): 102

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: NA * Three Well Volumes:

Purge Equipment: QED Bladder pump Pump Depth: 16' Start Time: 1130

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1144	~2.0			5.78	776	10.71	276	*	—	
1148	~4.0			5.82	776	10.31	272	—	—	
1152	~5.0			"	778	9.92	271	3.97	—	
1156	~7.0			"	781	9.56	270	4.42		
1200	~10.0			5.86	781	9.38	270	4.95		
1204	~12.0			5.84	"	9.31	"	5.10		

Sample Time: 1210 Sampling Method: Bladder Pump

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	
250mL Plastic	HNO_3	Dissolved Metals	✓	W. + F. filtered
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: * Final Depth to Water: End Time: 1220

Notes: * - purged until ± 5% parameter stabilization

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Minister MW Sample Location: MW-11

Personnel: DC Sample ID: MW-11

Date: 9-14-20 Field Conditions: ~~Rain~~ Rain - 40's

Condition of Well: Good

Depth to Water (DTW): 36.20 Total Depth of Well (TD): 82

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: _____ Three Well Volumes: NA/Stabilization

Purge Equipment: QED bladder pump Pump Depth: 39' Start Time: 1335

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1346	2.0			*4.35	731	9.13	-51.3	1.07	—	* ? pH
1352	4.0			5.48	732	8.89	-70.2	0.76	—	
1357	6.0			5.68	732	8.86	-76.1	0.73	—	
1400	8.0			5.83	"	8.83	-80	0.71	—	

Sample Time: ~~1335~~ 1405 Sampling Method: QED bladder pump

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: _____ Final Depth to Water: _____ End Time: 1425

Notes: _____

Sampler Signature: _____

Monitoring Well Purging and Sampling Form

Site Name: Minster MW LF Sample Location: MW-9R

Personnel: OC Sample ID: MW-9R

Date: 9-14-17 Field Conditions: Rain - 40's

Condition of Well: Good

Depth to Water (DTW): 42.8 Total Depth of Well (TD):

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: QED Bladder pump Pump Depth: 40' Start Time: 2:35

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
2:40	2.0			*9.65	1056	9.46	14.4	3.20	—	*2 pH
2:45	3.0			5.56	984	9.26	58.4	3.93		
2:50	4.0			5.77	936	9.25	56.6	5.46	—	
2:55	5.0			5.86	917	9.14	101.3	6.42		

Sample Time: 15:00 Sampling Method: QED Bladder pump

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mister Mart Sample Location: MW-OW

Personnel: OE Sample ID: MW-OW

Date: 9-14-17 Field Conditions: Rain 40's

Condition of Well: Good

Depth to Water (DTW): 37' Total Depth of Well (TD):

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: QED Bladder pump Pump Depth: 40' Start Time: 320

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
325	2			*	742	9.08	142	3.10		* Muddy Appearance
330	4			*	691	8.95	138	0.96	—	*
335	6			*	689	9.11	135	0.71	—	
340	8			*	689	9.13	11	0.69	—	

Sample Time: 345 Sampling Method: QED Bladder pump

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Miller Ln LF Sample Location: House Well

Personnel: OC Sample ID:

Date: 9-14-17 Field Conditions: Rain - 40's

Condition of Well: Good

Depth to Water (DTW): NA Total Depth of Well (TD):

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: Well pump Pump Depth: Start Time:

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments

Sample Time: 4:30 Sampling Method: Direct

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

CLOSED MISTER M LANDFILL, LICENSE #302

LEWISTOWN, FERGUS COUNTY, MONTANA

SEPTEMBER 2017 GROUNDWATER MONITORING RESULTS AND STATISTICAL ANALYSES

Prepared By:

Montana Department of Environmental Quality

Solid Waste Section

October 30, 2017

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Appendix A: Laboratory Analytical and QA/QC Summary Report

Appendix B: Results of Statistical Analyses

1.0 INTRODUCTION

Groundwater monitoring at the closed Mister M Landfill, License #302, was conducted in September 2017 by the Department of Environmental Quality (DEQ), Solid Waste Section (SWS), according to the July 2011 Sampling and Analysis Plan for Groundwater (SAP) (MDEQ, 2011). The Mister M Landfill is located in Fergus County, Montana, approximately four miles east of Lewistown on US Highway 87. The landfill lies in a small south facing coulee which drains to Boyd Creek. The facility received Class II wastes from 1956 to 1998, and was granted interim closure status on December 5, 2000. The current owners, Marvin and Sandra Mintyala, operated the facility from 1974 until approximately 2000, when the site was abandoned.

According to the Geohydrologic Characterization (Gillespie, 1993 revised; and Gillespie, 1994) the landfill is underlain by the Kootenai formation, which consists of predominately shale with some silty sandstone. A basal unit of sandstone in the Kootenai formation is the uppermost aquifer in the area. Minor amounts of water have been encountered in the upper portions of the Kootenai formation but most of the monitoring wells completed in the upper Kootenai formation at the site have frequently been dry or contained minimal volumes of water.

Previous groundwater monitoring at the facility was conducted by the owners or their consultants from:

- 1993-1999: Gillespie, 1995 and 1996
- Energy Laboratories, 1997, 1998, and 1998
- Portage Environmental, 1999 and 2000.
- From 2003-2008 Tetra Tech, Inc. was authorized by the DEQ to conduct groundwater monitoring in the absence of action by the owners
- Energy Laboratories, 2003-2007
- Maxim, 2005
- DEQ SWS personnel have conducted groundwater monitoring from January 2009 to the present.

2.0 FIELD PROCEDURES

DEQ's SWS conducted monitoring activities on September 14 and 15, 2017. This included monitoring well inspections, Static Water Level (SWL) measurements, and groundwater sample collection as part of the detection monitoring program currently in effect for the facility. Copies of the field notes are in SWS files. All field activities described in this report were conducted in accordance with the approved July 2011 SAP, and any deviations from the SAP are described herein. The analysis of groundwater samples was conducted by Energy Laboratories Inc., in Helena, Montana.

2.1 WELL INSPECTIONS

The monitoring wells currently in use were inspected on September 14, 2017. All locks have been replaced with keyed alike Master locks. MW-OW does not have an external protective casing. All other monitoring wells are in good condition.

2.2 WATER LEVEL MEASUREMENTS

Static water levels were measured on September 14, 2017, in wells MW-5, MW-9R, MW-11, MW-12, and MW-OW using a Slope Indicator electric water level meter. The total depths of wells MW-9R, MW-11, and MW-12 were also recorded.

2.3 GROUNDWATER SAMPLING

Groundwater samples were collected October 27, 2016, from wells MW-9R, MW-11, MW-12, MW-HW, and MW-OW. At each well, samples were collected for all of the parameters listed in the SAP. The wells were purged and sampled using QED bladder pump and low-flow sampling techniques. Field water quality measurements were made using an YSI multi-parameter water quality meter, which was calibrated by SWS personnel.

3.0 Monitoring Results

3.1 Groundwater Levels and Flow

The September 2017 water levels were very similar to the October 2016 levels, with the exception of the deep wells. The deep wells' water levels are historically variable and are based on relative elevations. Figure 4 displays the September 2017 static water levels on a map. No attempt was made to contour the static water levels as the shallow wells are completed in minor water bearing zones of unknown horizontal extent and connectivity, and the water level measurements made in the deep water bearing zone are from wells that have not yet been surveyed. Groundwater flow in the shallow water bearing zones likely follows local topography and flows in a south to southwest direction. Groundwater flow in the deep water bearing zone is assumed to be to the southwest based on records from domestic wells in the area. Tables containing historic water levels and hydrographs for both the shallow and deep water bearing zones are included in Appendix D.

3.2 Data Validation

Upon receipt from the laboratory, the analytical results were validated as described in the SAP to ensure that data quality objectives had been met. All samples were analyzed within the required holding times. The relative percent difference for all field and laboratory duplicates were within control limits, and all control samples and blanks were acceptable.

3.3 Groundwater Analytical Results

A copy of the laboratory analytical report is included in Appendix A.

3.3.1 Indicator Parameters

Indicator parameters for the site continue to be stable with little fluctuations from those observed in the shallow background well MW-5 in previous sampling events and in other shallow wells.

3.3.2 Dissolved Metals

Arsenic, Barium, Cadmium, Iron and Zinc were detected at low levels in facility wells during this sampling event. None of the metals detected exceeded groundwater protection standards.

3.3.3 Volatile Organic Compounds

Overall there do not appear to be any significant increasing trends in Volatile Organic Compounds (VOCs) at the site. MW-9R had a detection of cis-1, 2-Dichloroethene at 1.2 *u*g/l, which was the below the concentration of 2.4 for the October 2016 event. The MW-OW continues to have sporadic detections of (concentrations in µg/l): cis-1, 2-Dichloroethene (4.5), and Benzene 0.16. The MW-HW (house well), had, for the first time, numerous low level detections of Acetone (2.0), Bromodichloromethane (3.5), Chlorodibromomethane (2.5), Bromoform (2.5) and Chloroform (4.2). With the exception of Acetone, these compounds are typically disinfection by products of chloride treatment of water. These compounds, along with Acetone, have also been attributed to laboratory contaminant artifacts. These detections, if continued, will be closely monitored in future events. Detection of VOCs in other wells are at estimated values, J flagged by the Laboratory, which are below the detection limit.

4.0 Statistical Analysis

4.1 Statistical Methods

The statistical analyses were performed using the statistical software package Sanitas v.9.5.32. The validated analytical data was first screened to determine which parameters required statistical analysis. Only parameters which were detected in one or more compliance wells (MW-11 and MW-12), and had been historically detected at least once in the background well (MW-HW), were analyzed using an inter-well prediction limit. If a parameter was detected in a compliance well, but was non-detected in the background dataset, the background value was set as the detection limit and any detection of that parameter above the detection limit was considered a statistical exceedance of background. As a result of the screening described above,

the parameters selected for prediction limit analysis were: pH, Specific Conductivity, Chloride, Sulfate, Arsenic, Barium, Iron, and Zinc. Trend analysis was run for selected VOCs.

The background dataset was screened to determine if trends were present using the Sen's Slope/Mann Kendall test. Each selected parameter was compared to the background dataset using an inter-well prediction limit analysis. Sanitas software determines the distribution of the background dataset and performs the appropriate statistical test for that distribution. If the prediction limit analysis indicated an exceedance of background levels, a Sen's Slope/Mann Kendall test was conducted to analyze any trends in the data. All the statistical tests were performed at a 95% site-wide confidence level.

A Sen's Slope/Mann Kendall test was also conducted on all parameters detected in all wells to analyze trends in the data.

4.2 Analysis Results

Table 1 contains a summary of the analyses. The full results of the statistical analyses are included in Appendix F. Due to the small size of the background dataset, the site-wide confidence levels for non-parametric tests were less than 95%.

The values from the current sampling event for all parameters in compliance wells MW-11 and MW-12 were within prediction limits.

Trend analyses for well MW-9R indicated insignificant decreasing trends for sulfate and nitrate + nitrite. The cause of these trends is unknown, but MW-9R is completed in a shallow aquifer producing very little water, so temporal changes in groundwater chemistry are expected.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Water levels will continue to be monitored semiannually providing additional data on water level trends.

Additional data from the background well MW-HW is useful for evaluating the results from the other deep wells, for increasing the power of the statistical analysis. MW-HW will be sampled annually basis to increase the size of the background dataset for the compliance wells. Three VOCs were detected in MW-9R at much lower levels than previous sampling events and there appears to be a slightly downward trend. The contaminants present in MW-9R are different than those seen in MW-OW, indicating that the contamination may be from a different source or, that MW-9R may be closer to the source area than MW-OW; however, the source of these VOCs is unknown. Well MW-9R will continue to be sampled annually for inorganics and VOCs. Well MW-OW continues to show both inorganic and organic contamination. Sulfate and chloride have returned to near normal levels, while zinc and iron concentrations remain slightly above normal levels. These findings may result from the galvanized well casing and/or previous down-hole equipment associated used when MW-OW was a water supply well.

The analytical results and statistical analyses from compliance wells MW-11 and MW-12 show no impact from landfill leachate. The one VOC, cis-1, 2-Dichloroethene, previously detected at a very low level in MW-12, was not detected during the past five sampling events. All parameters in the compliance wells are below background levels, so the facility will continue with detection monitoring. MW-11 and MW-12 will be sampled annually, as the point of compliance wells for the facility. The next groundwater sampling event is tentatively scheduled in July 2018. After that wells will be sampled on an annually. The Sampling and Analysis Plan will be updated to reflect that change.

6.0 REFERENCES

Gillespie, Robert W. P.E., 1993 revised, "Geohydrologic Characterization, Mister M Landfill, Lewistown, Montana"

Gillespie, Robert W. P.E, 1994, "Addendum to Site Characterization, Mister M Landfill, License No. 302, Lewistown, Montana"

Gillespie, Robert W. P.E, 1995, "Annual Groundwater Quality Report, Mister M Landfill Site, Lewistown, Montana"

Maxim Technologies, 2005, "November 2005 Groundwater Monitoring Field Notes, Mister M Landfill, Lewistown, Montana"

MDEQ, Solid Waste Program 2011, 2012, 2013, 2014, 2015 and 2016 "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, Semi Annual Groundwater Monitoring Results and Statistical Analyses"

Table 1: Summary of Results of Statistical Analyses for September 2017 Data

		Prediction Interval Analysis					Trend Analysis	
Parameter	Well	Distribution	Confidence Level (%)	Prediction Limit(s)	Result	Exceeds Limit?	Slope (per yr)	Significant
pH	MW-9R	normal	98	6.90-8.13	7.4	No	0.01	No
	MW-11	normal	98	6.90-8.13	7.5	No	-0.02	No
	MW-12	normal	98	6.90-8.13	7.5	No	0.0	No
	MW-OW	normal	98	6.90-8.13	7.5	No	0.0	No
Specific Conductivity	MW-9R	normal	98	865.5	827	No	6.48	No
	MW-11	normal	98	865.5	663	No	5.0	Yes
	MW-12	normal	98	865.5	706	No	5.13	No
	MW-OW	normal	98	865.5	622	No	-5.08	Yes
Chloride	MW-9R	normal	98	11.89	6	No	-1.03	No
	MW-11	normal	98	11.89	2	No	0	No
	MW-12	normal	98	11.89	3	No	-0.23	Yes
	MW-OW	normal	98	11.89	15	Yes	0.05	No
Sulfate	MW-9R	normal	98	107	59	No	-1.34	No
	MW-11	normal	98	107	44	No	0.88	No
	MW-12	normal	98	107	35	No	0.5	No
	MW-OW	normal	98	107	*ND*	No	-1.27	Yes
Nitrate+Nitrite	MW-9R	normal	98	0.44	1.93	Yes	-0.28	Yes
Iron	MW-11	normal	98	0.75	*ND*	No	-0.01	No
	MW-12	normal	98	0.75	*ND*	No	-0.08	No
	MW-OW	normal	98	0.75	*ND*	No	-0.02	No
Zinc	MW-12	normal	98	0.08	*ND*	No	0	No
	MW-OW	normal	98	0.08	0.94	Yes	0.03	Yes
cis-1,2-Dichloroethene	MW-9R	not normal	98	9.6	1.2	No	-0.40	No
	MW-OW	not normal	98	9.6	4.5	No	0.14	No
Ethyl benzene	MW-OW	not normal	98	0.5	*ND*	No	0	No
	MW-9R	not normal	98	0.5	*ND*	No	-0.04	Yes
Styrene	MW-OW	not normal	98	1	*ND*	No	0	No
Tetrachloroethene	MW-9R	NA	98	0.58	0.68	Yes	-0.03	No

Notes:
N/A = Not analyzed
ND = Non-detect
N/A = Not applicable

Table B-1: Historical Water Levels

Date	MW-1	MW-2	MW-4	MW-5	MW-6	MW-7	MW-7R	MW-8	MW-9	MW-9R	MW-10	MW-10R	MW-11	MW-12	MW-OW
6/16/93	Dry	Dry	Dry	Dry	Dry	Dry		Dry							NM
10/14/94	NM	NM	NM	NM	NM	NM		NM	Dry		4155.69				NM
12/15/95	4154.12	Dry	Dry	4177.65	4160.64	4173.00		Dry	4140.77		4160.92				NM
3/28/96	4157.37	NM	NM	NM	NM	4176.51		NM	4139.43		4158.09				NM
11/29/05	4154.17	4174.1	NM	4181.82	Dry		Dry	4155.06		4159(1)		4161(1)			NM
12/18/07	Dry	Dry	Dry	4165.54	Dry		Dry	4155.04		4159(1)		4164(1)			4162(1)
1/21/09	4153.12	Dry	NM	4165.75(2)	?(3)		4177(1)(4)	NM		4159(1)		4164(1)			4163(1)
6/1/09	NM	NM	NM	4172.02	NM		NM	NM		4163(1)		4170(1)			4170(1)
10/26/09	NM		NM	4165.23	NM		NM	NM		4160(1)		4164(1)			4163(1)
2/26/10	NM		Dry	4165.44	4160.07		4177(1)	4154.52		4159(1)		NM(5)			4162(1)
6/21/10	NM		NM	4172.91	4171.36		4190(1)	4169.97		4180(1)		NM(5)			4172(1)
10/25/10	NM			4169.50	4166.84					4161(1)			4168(1)	4167(1)	4168(1)
5/23/11	NM			4179.62	4178.04					4183(1)			4172(1)	Flowing(1)(6)	4179(1)
10/17/11	NM			4171.25	4168.30					4160(1)			4175(1)	Flowing(1)(6)	4171(1)
5/22/12	NM			4174.09	4172.42					4166(1)			4176(1)	Flowing(1)(6)	4173(1)
10/23/12	NM			4166.19	NM					4159(1)			4173(1)	4164(1)	4165(1)
10/23/13	NM			4163.84	4160.36					4158(1)			4170(1)	4164(1)	4166(1)
6/10/14	4148.97			4168.81	4166.35			4152.34		4160(1)			4170(1)	4166(1)	4167(1)
10/1/14	4149.32			4167.83	4160.37			4153.31		4160(1)			4169(1)	4165(1)	4166(1)
10/29/15	NM			4165.45	4160.97			NM		4159(1)			4166(1)	4158(1)	4160(1)
7/21/16	NM			4166	4161.00			NM		4164(1)			4163(1)	4160(1)	4162(1)
10/27/16	NM			4165.35	4161.00			NM		4159(1)			4164(1)	4159(1)	4160(1)
9/14/17	NM			4165.35	Dry			NM		4158(1)			4163(1)	4157(1)	4159(1)

Notes:

NM = Not measured

= Well not present.

(1) Reference elevation estimated from topographic contours (5ft) and field observations

(2) Deeper than tape, 2 ft. of water in well, DTW calculated from TD recorded 12/18/07

(3) Deeper than tape, DTW unknown

(4) 3 in. of water in well, DTW calculated from TD

(5) Well damaged, measurement not possible.

(6) Well flowing artesian at time of measurement, top of casing elevation 4169ft

FIGURES

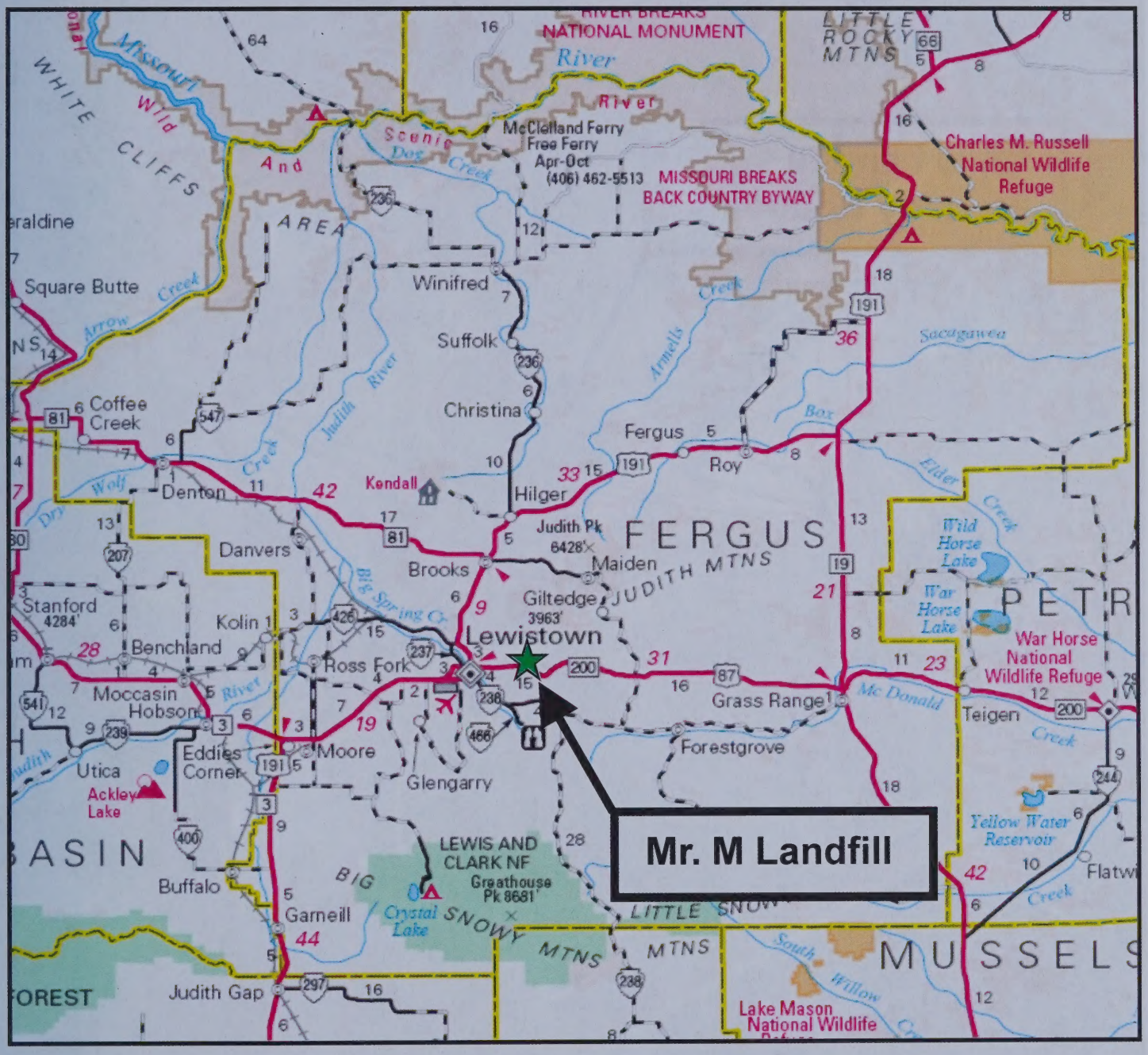


Figure 1: Location Map

Adapted from State of Montana Highway Map.

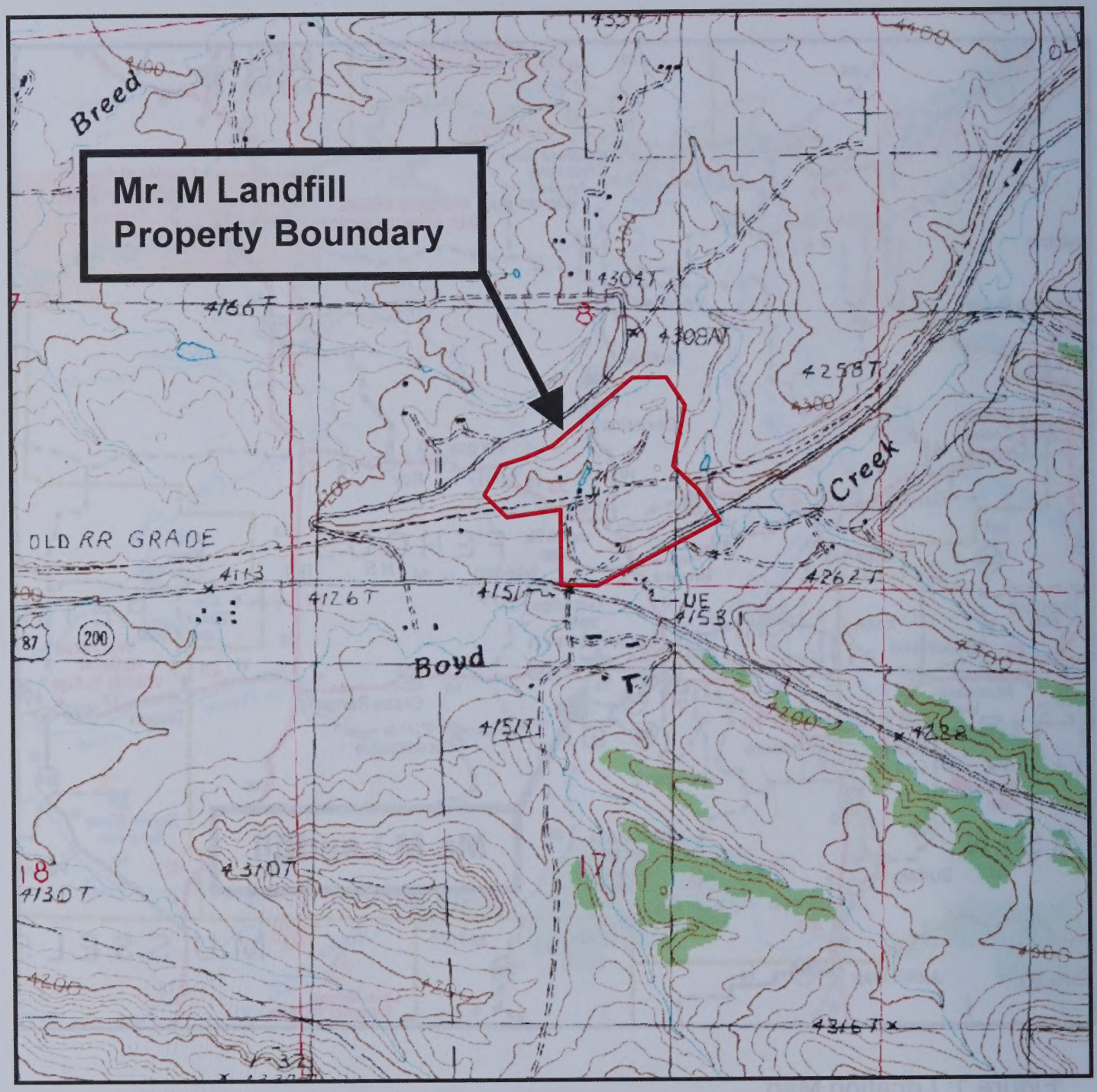


Figure 2: Facility Map

Adapted from USGS Pike Creek 24k Quadrangle.



Figure 4: Groundwater Levels

Base Aerial Photo from 2012.

The reference elevations for MW-9R, MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.



Figure 3: Locations of Monitoring Points

Base Aerial Photo from 2012.

Figure B-1: Static Water Levels in Shallow Wells



The reference elevation for MW-9R is estimated from topographic contours and field observations.

Figure B-2: Static Water Levels in Deep Wells



The reference elevations for MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

APPENDIX A: LABORATORY ANALYTICAL AND QA/QC SUMMARY REPORT

ANALYTICAL SUMMARY REPORT

October 03, 2017

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H17090322

Project Name: Mister M Landfill

Energy Laboratories Inc Helena MT received the following 6 samples for MT-DEQ Solid Waste Section on 9/15/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H17090322-001	MW-12	09/14/17 12:10	09/15/17	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Mercury, Dissolved Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration Digestion, Mercury by CVAA 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H17090322-002	MW-11	09/14/17 14:05	09/15/17	Aqueous	Same As Above
H17090322-003	MW-9r	09/14/17 15:00	09/15/17	Aqueous	Same As Above
H17090322-004	MW-OW	09/14/17 15:45	09/15/17	Aqueous	Same As Above
H17090322-005	MW-HW	09/14/17 16:30	09/15/17	Aqueous	Same As Above
H17090322-006	TB6599	09/14/17 12:10	09/15/17	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Amanda Carlson
Assistant Laboratory Manager-Helena,MT

Digitally signed by
Amanda B. Carlson
Date: 2017.10.03 09:34:42 -06:00

CLIENT: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Work Order: H17090322

Report Date: 10/03/17

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-001
Client Sample ID: MW-12

Report Date: 10/03/17
Collection Date: 09/14/17 12:10
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/15/17 15:43 / SRW
Conductivity @ 25 C	706	umhos/cm		1		A2510 B	09/15/17 15:43 / SRW
INORGANICS							
Chloride	3	mg/L		1		E300.0	09/16/17 08:38 / SRW
Sulfate	35	mg/L		1		E300.0	09/16/17 08:38 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.01		E353.2	09/19/17 11:53 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/29/17 10:57 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/17 10:57 / dck
Barium	0.039	mg/L		0.003		E200.8	09/29/17 10:57 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/02/17 15:02 / dck
Cadmium	0.00003	mg/L		0.00003		E200.8	09/29/17 10:57 / dck
Chromium	ND	mg/L		0.01		E200.8	09/29/17 10:57 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/17 10:57 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/17 10:57 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/17 10:57 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/17 10:57 / dck
Mercury	ND	mg/L		5E-06		E245.1	09/27/17 17:22 / eli-b14
Nickel	ND	mg/L		0.002		E200.8	09/29/17 10:57 / dck
Selenium	ND	mg/L		0.001		E200.8	09/29/17 10:57 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/17 10:57 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/17 10:57 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/29/17 10:57 / dck
Zinc	ND	mg/L		0.008		E200.8	09/29/17 10:57 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/18/17 14:24 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 14:24 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-001
Client Sample ID: MW-12

Report Date: 10/03/17
Collection Date: 09/14/17 12:10
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
cis-1,2-Dichloroethene	0.11	ug/L	J	0.50		SW8260B	09/18/17 14:24 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 14:24 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 14:24 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 14:24 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 14:24 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 14:24 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 14:24 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 14:24 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 14:24 / kjw
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	09/18/17 14:24 / kjw
Surr: Dibromofluoromethane	95.0	%REC		77-126		SW8260B	09/18/17 14:24 / kjw
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	09/18/17 14:24 / kjw
Surr: Toluene-d8	98.0	%REC		79-122		SW8260B	09/18/17 14:24 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-002
Client Sample ID: MW-11

Report Date: 10/03/17
Collection Date: 09/14/17 14:05
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/15/17 15:47 / SRW
Conductivity @ 25 C	663	umhos/cm		1		A2510 B	09/15/17 15:47 / SRW
INORGANICS							
Chloride	2	mg/L		1		E300.0	09/16/17 08:51 / SRW
Sulfate	44	mg/L		1		E300.0	09/16/17 08:51 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/19/17 11:54 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/29/17 10:58 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/17 10:58 / dck
Barium	0.034	mg/L		0.003		E200.8	09/29/17 10:58 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/02/17 15:04 / dck
Cadmium	0.00007	mg/L		0.00003		E200.8	09/29/17 10:58 / dck
Chromium	ND	mg/L		0.01		E200.8	09/29/17 10:58 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/17 10:58 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/17 10:58 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/17 10:58 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/17 10:58 / dck
Mercury	ND	mg/L		5E-06		E245.1	09/27/17 17:25 / eli-b14
Nickel	ND	mg/L		0.002		E200.8	09/29/17 10:58 / dck
Selenium	ND	mg/L		0.001		E200.8	09/29/17 10:58 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/17 10:58 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/17 10:58 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/29/17 10:58 / dck
Zinc	ND	mg/L		0.008		E200.8	09/29/17 10:58 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/18/17 13:28 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 13:28 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Carbon disulfide	0.18	ug/L	J	1.0		SW8260B	09/18/17 13:28 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-002
Client Sample ID: MW-11

Report Date: 10/03/17
Collection Date: 09/14/17 14:05
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 13:28 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 13:28 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 13:28 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 13:28 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 13:28 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 13:28 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 13:28 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 13:28 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 13:28 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 13:28 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 13:28 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 13:28 / kjw
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	09/18/17 13:28 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/18/17 13:28 / kjw
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	09/18/17 13:28 / kjw
Surr: Toluene-d8	97.0	%REC		79-122		SW8260B	09/18/17 13:28 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-003
Client Sample ID: MW-9r

Report Date: 10/03/17
Collection Date: 09/14/17 15:00
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/15/17 15:49 / SRW
Conductivity @ 25 C	827	umhos/cm		1		A2510 B	09/15/17 15:49 / SRW
INORGANICS							
Chloride	6	mg/L		1		E300.0	09/16/17 09:05 / SRW
Sulfate	69	mg/L		1		E300.0	09/16/17 09:05 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.93	mg/L		0.01		E353.2	09/19/17 11:55 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/29/17 11:00 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/17 11:00 / dck
Barium	0.070	mg/L		0.003		E200.8	09/29/17 11:00 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/02/17 15:06 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/17 11:00 / dck
Chromium	ND	mg/L		0.01		E200.8	09/29/17 11:00 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/17 11:00 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/17 11:00 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/17 11:00 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/17 11:00 / dck
Mercury	ND	mg/L		5E-06		E245.1	09/27/17 17:28 / eli-b14
Nickel	ND	mg/L		0.002		E200.8	09/29/17 11:00 / dck
Selenium	ND	mg/L		0.001		E200.8	09/29/17 11:00 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/17 11:00 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/17 11:00 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/29/17 11:00 / dck
Zinc	ND	mg/L		0.008		E200.8	09/29/17 11:00 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/18/17 14:52 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 14:52 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-003
Client Sample ID: MW-9r

Report Date: 10/03/17
Collection Date: 09/14/17 15:00
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
cis-1,2-Dichloroethene	1.2	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 14:52 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 14:52 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 14:52 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 14:52 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 14:52 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Tetrachloroethene	0.68	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Trichloroethene	0.16	ug/L	J	0.50		SW8260B	09/18/17 14:52 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 14:52 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 14:52 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 14:52 / kjw
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	09/18/17 14:52 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/18/17 14:52 / kjw
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	09/18/17 14:52 / kjw
Surr: Toluene-d8	98.0	%REC		79-122		SW8260B	09/18/17 14:52 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-004
Client Sample ID: MW-OW

Report Date: 10/03/17
Collection Date: 09/14/17 15:45
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	09/15/17 15:51 / SRW
Conductivity @ 25 C	622	umhos/cm		1		A2510 B	09/15/17 15:51 / SRW
INORGANICS							
Chloride	15	mg/L		1		E300.0	09/16/17 09:18 / SRW
Sulfate	ND	mg/L		1		E300.0	09/16/17 09:18 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/19/17 11:59 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/29/17 14:43 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/17 14:43 / dck
Barium	0.153	mg/L		0.003		E200.8	09/29/17 14:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/17 14:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/17 14:43 / dck
Chromium	ND	mg/L		0.01		E200.8	09/29/17 14:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/17 14:43 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/17 14:43 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/17 14:43 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/17 14:43 / dck
Mercury	ND	mg/L		5E-06		E245.1	09/28/17 14:33 / eli-b14
Nickel	ND	mg/L		0.002		E200.8	09/29/17 14:43 / dck
Selenium	ND	mg/L		0.001		E200.8	09/29/17 14:43 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/17 14:43 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/17 14:43 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/29/17 14:43 / dck
Zinc	0.945	mg/L		0.008		E200.8	09/29/17 14:43 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/18/17 15:20 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 15:20 / kjw
Benzene	0.13	ug/L	J	0.50		SW8260B	09/18/17 15:20 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-004
Client Sample ID: MW-OW

Report Date: 10/03/17
Collection Date: 09/14/17 15:45
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
cis-1,2-Dichloroethene	4.5	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 15:20 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 15:20 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 15:20 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 15:20 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 15:20 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Trichloroethene	0.11	ug/L	J	0.50		SW8260B	09/18/17 15:20 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 15:20 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 15:20 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 15:20 / kjw
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	09/18/17 15:20 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	09/18/17 15:20 / kjw
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	09/18/17 15:20 / kjw
Surr: Toluene-d8	98.0	%REC		79-122		SW8260B	09/18/17 15:20 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-005
Client Sample ID: MW-HW

Report Date: 10/03/17
Collection Date: 09/14/17 16:30
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	09/15/17 15:54 / SRW
Conductivity @ 25 C	788	umhos/cm		1		A2510 B	09/15/17 15:54 / SRW
INORGANICS							
Chloride	6	mg/L		1		E300.0	09/16/17 09:32 / SRW
Sulfate	33	mg/L		1		E300.0	09/16/17 09:32 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	09/19/17 12:00 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	09/29/17 11:04 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/17 11:04 / dck
Barium	0.074	mg/L		0.003		E200.8	09/29/17 11:04 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/02/17 15:10 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/17 11:04 / dck
Chromium	ND	mg/L		0.01		E200.8	09/29/17 11:04 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/17 11:04 / dck
Copper	0.003	mg/L		0.002		E200.8	09/29/17 11:04 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/17 11:04 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/17 11:04 / dck
Mercury	ND	mg/L		5E-06		E245.1	09/28/17 10:43 / eli-b14
Nickel	ND	mg/L		0.002		E200.8	09/29/17 11:04 / dck
Selenium	0.001	mg/L		0.001		E200.8	09/29/17 11:04 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/17 11:04 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/17 11:04 / dck
Vanadium	ND	mg/L		0.1		E200.8	09/29/17 11:04 / dck
Zinc	0.046	mg/L		0.008		E200.8	09/29/17 11:04 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	2.0	ug/L	J	20		SW8260B	09/18/17 15:54 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 15:54 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Bromodichloromethane	3.5	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Bromoform	1.8	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Chlorodibromomethane	2.5	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Chloroform	4.2	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-005
Client Sample ID: MW-HW

Report Date: 10/03/17
Collection Date: 09/14/17 16:30
DateReceived: 09/15/17
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 15:54 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 15:54 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 15:54 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 15:54 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 15:54 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 15:54 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 15:54 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 15:54 / kjw
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	09/18/17 15:54 / kjw
Surr: Dibromofluoromethane	91.0	%REC		77-126		SW8260B	09/18/17 15:54 / kjw
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	09/18/17 15:54 / kjw
Surr: Toluene-d8	69.0	%REC	S	79-122		SW8260B	09/18/17 15:54 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
S - Spike recovery outside of advisory limits.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-006
Client Sample ID: TB6599

Report Date: 10/03/17
Collection Date: 09/14/17 12:10
DateReceived: 09/15/17
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/18/17 13:00 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/18/17 13:00 / kjw
Benzene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 13:00 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/18/17 13:00 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	09/18/17 13:00 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/18/17 13:00 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/18/17 13:00 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Styrene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Toluene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H17090322-006
Client Sample ID: TB6599

Report Date: 10/03/17
Collection Date: 09/14/17 12:10
DateReceived: 09/15/17
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/18/17 13:00 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/18/17 13:00 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/18/17 13:00 / kjw
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	09/18/17 13:00 / kjw
Surr: Dibromofluoromethane	94.0	%REC		77-126		SW8260B	09/18/17 13:00 / kjw
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	09/18/17 13:00 / kjw
Surr: Toluene-d8	99.0	%REC		79-122		SW8260B	09/18/17 13:00 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B								Analytical Run: PHSC_101-H_170915A	
Lab ID: CCV - SC 1413	Continuing Calibration Verification Standard							09/15/17 09:34	
Conductivity @ 25 C	1440	umhos/cm	1.0	102	90	110			
Method: A2510 B								Batch: R128488	
Lab ID: SC 150	Initial Calibration Verification Standard				Run: PHSC_101-H_170915A			09/15/17 08:36	
Conductivity @ 25 C	157	umhos/cm	1.0	105	90	110			
Lab ID: SC 5000	Initial Calibration Verification Standard				Run: PHSC_101-H_170915A			09/15/17 08:38	
Conductivity @ 25 C	4960	umhos/cm	1.0	99	90	110			
Lab ID: SC 20000	Initial Calibration Verification Standard				Run: PHSC_101-H_170915A			09/15/17 08:40	
Conductivity @ 25 C	19800	umhos/cm	1.0	99	90	110			
Lab ID: SC 1000	Laboratory Control Sample				Run: PHSC_101-H_170915A			09/15/17 08:42	
Conductivity @ 25 C	1010	umhos/cm	1.0	101	90	110			
Lab ID: H17090322-001ADUP	Sample Duplicate				Run: PHSC_101-H_170915A			09/15/17 15:45	
Conductivity @ 25 C	707	umhos/cm	1.0				0.2	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-H_170915A	
Lab ID: pH 7	Initial Calibration Verification Standard								09/15/17 08:33
pH	7.0	s.u.	0.1	99	98	102			
Lab ID: CCV - pH 7	Continuing Calibration Verification Standard								09/15/17 09:31
pH	7.0	s.u.	0.1	100	98	102			
Method: A4500-H B									Batch: R128488
Lab ID: H17090322-001ADUP	Sample Duplicate				Run: PHSC_101-H_170915A				09/15/17 15:45
pH	7.5	s.u.	0.1				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_170929A	
Lab ID: ICV	Initial Calibration Verification Standard								09/29/17 07:59
Antimony	0.0602	mg/L	0.050	100	90	110			
Arsenic	0.0605	mg/L	0.0050	101	90	110			
Barium	0.0603	mg/L	0.10	101	90	110			
Beryllium	0.0312	mg/L	0.0010	104	90	110			
Cadmium	0.0302	mg/L	0.0010	101	90	110			
Chromium	0.0608	mg/L	0.010	101	90	110			
Cobalt	0.0619	mg/L	0.010	103	90	110			
Copper	0.0620	mg/L	0.010	103	90	110			
Iron	0.296	mg/L	0.020	99	90	110			
Lead	0.0595	mg/L	0.010	99	90	110			
Nickel	0.0617	mg/L	0.010	103	90	110			
Selenium	0.0575	mg/L	0.0050	96	90	110			
Silver	0.0302	mg/L	0.0050	101	90	110			
Thallium	0.0600	mg/L	0.10	100	90	110			
Vanadium	0.0603	mg/L	0.10	101	90	110			
Zinc	0.0614	mg/L	0.010	102	90	110			
Lab ID: ICSA	Interference Check Sample A								09/29/17 08:01
Antimony	9.65E-05	mg/L	0.050						
Arsenic	6.30E-05	mg/L	0.0050						
Barium	0.000144	mg/L	0.10						
Beryllium	-0.000115	mg/L	0.0010						
Cadmium	4.16E-05	mg/L	0.0010						
Chromium	0.00102	mg/L	0.010						
Cobalt	-1.66E-05	mg/L	0.010						
Copper	0.000230	mg/L	0.010						
Iron	94.8	mg/L	0.020	95	70	130			
Lead	0.000228	mg/L	0.010						
Nickel	-0.00112	mg/L	0.010						
Selenium	9.21E-05	mg/L	0.0050						
Silver	6.60E-05	mg/L	0.0050						
Thallium	-3.74E-05	mg/L	0.10						
Vanadium	3.87E-05	mg/L	0.10						
Zinc	-0.00125	mg/L	0.010						
Lab ID: ICSAB	Interference Check Sample AB								09/29/17 08:03
Antimony	6.10E-05	mg/L	0.050		0	0			
Arsenic	0.0102	mg/L	0.0050	102	70	130			
Barium	0.000102	mg/L	0.10		0	0			
Beryllium	-5.47E-05	mg/L	0.0010		0	0			
Cadmium	0.00965	mg/L	0.0010	96	70	130			
Chromium	0.0205	mg/L	0.010	102	70	130			
Cobalt	0.0199	mg/L	0.010	99	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS205-H_170929A		
Lab ID: ICSAB	Interference Check Sample AB								09/29/17 08:03
Copper	0.0198	mg/L	0.010	99	70	130			
Iron	94.1	mg/L	0.020	94	70	130			
Lead	0.000210	mg/L	0.010		0	0			
Nickel	0.0187	mg/L	0.010	94	70	130			
Selenium	0.00991	mg/L	0.0050	99	70	130			
Silver	0.0191	mg/L	0.0050	95	70	130			
Thallium	-5.19E-05	mg/L	0.10		0	0			
Vanadium	0.0198	mg/L	0.10	99	70	130			
Zinc	0.00877	mg/L	0.010	88	70	130			
Lab ID: ICV	Initial Calibration Verification Standard								09/29/17 17:36
Antimony	0.0596	mg/L	0.050	99	90	110			
Arsenic	0.0594	mg/L	0.0050	99	90	110			
Barium	0.0593	mg/L	0.10	99	90	110			
Beryllium	0.0303	mg/L	0.0010	101	90	110			
Cadmium	0.0300	mg/L	0.0010	100	90	110			
Chromium	0.0596	mg/L	0.010	99	90	110			
Cobalt	0.0603	mg/L	0.010	101	90	110			
Copper	0.0605	mg/L	0.010	101	90	110			
Iron	0.288	mg/L	0.020	96	90	110			
Lead	0.0584	mg/L	0.010	97	90	110			
Nickel	0.0606	mg/L	0.010	101	90	110			
Selenium	0.0580	mg/L	0.0050	97	90	110			
Silver	0.0296	mg/L	0.0050	99	90	110			
Thallium	0.0597	mg/L	0.10	100	90	110			
Vanadium	0.0590	mg/L	0.10	98	90	110			
Zinc	0.0611	mg/L	0.010	102	90	110			
Lab ID: ICSA	Interference Check Sample A								09/29/17 17:38
Antimony	9.86E-05	mg/L	0.050						
Arsenic	6.15E-05	mg/L	0.0050						
Barium	0.000147	mg/L	0.10						
Beryllium	0.000160	mg/L	0.0010						
Cadmium	0.000104	mg/L	0.0010						
Chromium	0.00105	mg/L	0.010						
Cobalt	4.13E-05	mg/L	0.010						
Copper	0.000281	mg/L	0.010						
Iron	91.8	mg/L	0.020	92	70	130			
Lead	0.000258	mg/L	0.010						
Nickel	0.000100	mg/L	0.010						
Selenium	0.000176	mg/L	0.0050						
Silver	5.92E-05	mg/L	0.0050						
Thallium	4.83E-05	mg/L	0.10						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_170929A	
Lab ID: ICSA	Interference Check Sample A								09/29/17 17:38
Vanadium	9.96E-06	mg/L	0.10						
Zinc	0.000967	mg/L	0.010						
Lab ID: ICSAB	Interference Check Sample AB								09/29/17 17:40
Antimony	5.79E-05	mg/L	0.050		0	0			
Arsenic	0.0102	mg/L	0.0050	102	70	130			
Barium	0.000113	mg/L	0.10		0	0			
Beryllium	8.30E-05	mg/L	0.0010		0	0			
Cadmium	0.0101	mg/L	0.0010	101	70	130			
Chromium	0.0210	mg/L	0.010	105	70	130			
Cobalt	0.0202	mg/L	0.010	101	70	130			
Copper	0.0199	mg/L	0.010	100	70	130			
Iron	94.8	mg/L	0.020	95	70	130			
Lead	0.000241	mg/L	0.010		0	0			
Nickel	0.0200	mg/L	0.010	100	70	130			
Selenium	0.00999	mg/L	0.0050	100	70	130			
Silver	0.0193	mg/L	0.0050	97	70	130			
Thallium	2.53E-05	mg/L	0.10		0	0			
Vanadium	0.0200	mg/L	0.10	100	70	130			
Zinc	0.0107	mg/L	0.010	107	70	130			
Method: E200.8									Batch: R128886
Lab ID: LRB	Method Blank				Run: ICPMS205-H_170929A				09/29/17 08:32
Antimony	ND	mg/L	2E-05						
Arsenic	ND	mg/L	2E-05						
Barium	ND	mg/L	2E-05						
Beryllium	ND	mg/L	8E-05						
Cadmium	ND	mg/L	2E-05						
Chromium	4E-05	mg/L	3E-05						
Cobalt	ND	mg/L	2E-05						
Copper	ND	mg/L	4E-05						
Iron	ND	mg/L	0.002						
Lead	ND	mg/L	1E-05						
Nickel	ND	mg/L	3E-05						
Selenium	ND	mg/L	3E-05						
Silver	ND	mg/L	8E-06						
Thallium	ND	mg/L	5E-06						
Vanadium	ND	mg/L	7E-05						
Zinc	ND	mg/L	0.0001						
Lab ID: LFB	Laboratory Fortified Blank				Run: ICPMS205-H_170929A				09/29/17 08:34
Antimony	0.0479	mg/L	0.050	96	85	115			
Arsenic	0.0492	mg/L	0.0050	98	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R128886	
Lab ID: LFB	Laboratory Fortified Blank				Run: ICPMS205-H_170929A			09/29/17 08:34	
Barium	0.0488	mg/L	0.10	98	85	115			
Beryllium	0.0495	mg/L	0.0010	99	85	115			
Cadmium	0.0492	mg/L	0.0010	98	85	115			
Chromium	0.0500	mg/L	0.010	100	85	115			
Cobalt	0.0508	mg/L	0.010	102	85	115			
Copper	0.0510	mg/L	0.010	102	85	115			
Iron	0.143	mg/L	0.020	95	85	115			
Lead	0.0480	mg/L	0.010	96	85	115			
Nickel	0.0516	mg/L	0.010	103	85	115			
Selenium	0.0464	mg/L	0.0050	93	85	115			
Silver	0.0197	mg/L	0.0050	98	85	115			
Thallium	0.0478	mg/L	0.10	96	85	115			
Vanadium	0.0492	mg/L	0.10	98	85	115			
Zinc	0.0499	mg/L	0.010	100	85	115			
Lab ID: H17090322-005BMSD	Sample Matrix Spike Duplicate				Run: ICPMS205-H_170929A			09/29/17 11:11	
Antimony	0.0504	mg/L	0.0010	101	70	130	7.6	20	
Arsenic	0.0515	mg/L	0.0010	103	70	130	8.7	20	
Barium	0.129	mg/L	0.050	109	70	130	4.7	20	
Beryllium	0.0527	mg/L	0.0010	105	70	130	4.6	20	
Cadmium	0.0508	mg/L	0.0010	102	70	130	7.2	20	
Chromium	0.0506	mg/L	0.0050	100	70	130	7.5	20	
Cobalt	0.0506	mg/L	0.0050	101	70	130	7.3	20	
Copper	0.0540	mg/L	0.0050	103	70	130	6.9	20	
Iron	0.194	mg/L	0.020	129	70	130	36	20	R
Lead	0.0501	mg/L	0.0010	100	70	130	8.6	20	
Nickel	0.0488	mg/L	0.0050	98	70	130	7.6	20	
Selenium	0.0521	mg/L	0.0010	102	70	130	6.9	20	
Silver	0.0208	mg/L	0.0010	104	70	130	9.5	20	
Thallium	0.0505	mg/L	0.00050	101	70	130	8.2	20	
Vanadium	0.0495	mg/L	0.010	99	70	130	6.9	20	
Zinc	0.0987	mg/L	0.010	105	70	130	7.6	20	
Lab ID: H17090318-029BMS	Sample Matrix Spike				Run: ICPMS205-H_170929A			09/29/17 14:51	
Antimony	0.0495	mg/L	0.0010	99	70	130			
Arsenic	0.0489	mg/L	0.0010	97	70	130			
Barium	0.217	mg/L	0.050	121	70	130			
Beryllium	0.0509	mg/L	0.0010	102	70	130			
Cadmium	0.0500	mg/L	0.0010	100	70	130			
Chromium	0.0489	mg/L	0.0050	95	70	130			
Cobalt	0.0491	mg/L	0.0050	98	70	130			
Copper	0.0510	mg/L	0.0050	101	70	130			
Iron	0.167	mg/L	0.020	107	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R128886
Lab ID: H17090318-029BMS	Sample Matrix Spike				Run: ICPMS205-H_170929A				09/29/17 14:51
Lead	0.0481	mg/L	0.0010	96	70	130			
Nickel	0.0488	mg/L	0.0050	96	70	130			
Selenium	0.0478	mg/L	0.0010	95	70	130			
Silver	0.0204	mg/L	0.0010	102	70	130			
Thallium	0.0484	mg/L	0.00050	97	70	130			
Vanadium	0.0493	mg/L	0.010	95	70	130			
Zinc	0.0499	mg/L	0.010	100	70	130			
Method: E200.8									Analytical Run: ICPMS205-H_171002A
Lab ID: ICV	Initial Calibration Verification Standard								10/02/17 10:16
Beryllium	0.0312	mg/L	0.0010	104	90	110			
Lab ID: ICSA	Interference Check Sample A								10/02/17 10:18
Beryllium	0.000138	mg/L	0.0010						
Lab ID: ICSAB	Interference Check Sample AB								10/02/17 10:20
Beryllium	0.000124	mg/L	0.0010		0	0			
Lab ID: ICV	Initial Calibration Verification Standard								10/02/17 13:54
Beryllium	0.0315	mg/L	0.0010	105	90	110			
Lab ID: ICSA	Interference Check Sample A								10/02/17 13:56
Beryllium	6.23E-05	mg/L	0.0010						
Lab ID: ICSAB	Interference Check Sample AB								10/02/17 13:58
Beryllium	-1.90E-05	mg/L	0.0010		0	0			
Method: E200.8									Batch: R128951
Lab ID: LRB	Method Blank				Run: ICPMS205-H_171002A				10/02/17 14:08
Beryllium	ND	mg/L	8E-05						
Lab ID: LFB	Laboratory Fortified Blank				Run: ICPMS205-H_171002A				10/02/17 14:10
Beryllium	0.0491	mg/L	0.0010	98	85	115			
Lab ID: H17090322-001BMS	Sample Matrix Spike				Run: ICPMS205-H_171002A				10/02/17 15:11
Beryllium	0.255	mg/L	0.0010	102	70	130			
Lab ID: H17090322-001BMSD	Sample Matrix Spike Duplicate				Run: ICPMS205-H_171002A				10/02/17 15:13
Beryllium	0.243	mg/L	0.0010	97	70	130	4.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1								Analytical Run: SUB-B287441	
Lab ID: CCV	Continuing Calibration Verification Standard							09/27/17 16:58	
Mercury	0.000110	mg/L	0.00010	110	90	110			
Method: E245.1								Batch: B_114116	
Lab ID: MB-114116	Method Blank				Run: SUB-B287441			09/27/17 16:17	
Mercury	ND	mg/L	2E-06						
Lab ID: LCS-114116	Laboratory Control Sample				Run: SUB-B287441			09/27/17 16:20	
Mercury	0.000199	mg/L	0.00010	100	85	115			
Lab ID: B17092221-004BMS	Sample Matrix Spike				Run: SUB-B287441			09/27/17 17:34	
Mercury	0.000213	mg/L	0.00010	104	70	130			
Lab ID: B17092221-004BMSD	Sample Matrix Spike Duplicate				Run: SUB-B287441			09/27/17 17:37	
Mercury	0.000212	mg/L	0.00010	103	70	130	0.5	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1									Analytical Run: SUB-B287492
Lab ID: CCV	Continuing Calibration Verification Standard								09/28/17 13:44
Mercury	0.000100	mg/L	0.00010	100	90	110			
Method: E245.1									Batch: B_114113
Lab ID: MB-114113	Method Blank				Run: SUB-B287492				09/28/17 09:44
Mercury	2E-06	mg/L	2E-06						
Lab ID: B17092273-003AMS	Sample Matrix Spike				Run: SUB-B287492				09/28/17 10:37
Mercury	0.000208	mg/L	0.00010	94	70	130			
Lab ID: B17092273-003AMSD	Sample Matrix Spike Duplicate				Run: SUB-B287492				09/28/17 10:40
Mercury	0.000206	mg/L	0.00010	93	70	130	1.0	30	
Lab ID: MB-114113	Method Blank				Run: SUB-B287492				09/28/17 09:44
Mercury	2E-06	mg/L	2E-06						
Lab ID: LCS-114113	Laboratory Control Sample				Run: SUB-B287492				09/28/17 09:47
Mercury	0.000194	mg/L	0.00010	97	85	115			
Method: E245.1									Batch: B_114176
Lab ID: MB-114176	Method Blank				Run: SUB-B287492				09/28/17 13:50
Mercury	ND	mg/L	2E-06						
Lab ID: LCS-114176	Laboratory Control Sample				Run: SUB-B287492				09/28/17 13:53
Mercury	0.000182	mg/L	0.00010	91	85	115			
Lab ID: B17091933-001BMS	Sample Matrix Spike				Run: SUB-B287492				09/28/17 14:10
Mercury	0.000217	mg/L	0.00010	64	70	130			S
Lab ID: B17091933-001BMSD	Sample Matrix Spike Duplicate				Run: SUB-B287492				09/28/17 14:12
Mercury	0.000220	mg/L	0.00010	66	70	130	1.4	30	S
Lab ID: MB-114176	Method Blank				Run: SUB-B287492				09/28/17 13:50
Mercury	ND	mg/L	2E-06						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0								Analytical Run: IC METROHM_170915A	
Lab ID: ICV	Initial Calibration Verification Standard							09/15/17 10:00	
Chloride	97.9	mg/L	1.0	98	90	110			
Sulfate	390	mg/L	1.0	98	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							09/16/17 06:49	
Chloride	47.5	mg/L	1.0	95	90	110			
Sulfate	189	mg/L	1.0	94	90	110			
Method: E300.0								Batch: R128525	
Lab ID: ICB	Method Blank				Run: IC METROHM_170915A			09/15/17 09:46	
Chloride	0.02	mg/L	0.008						
Sulfate	ND	mg/L	0.08						
Lab ID: LFB	Laboratory Fortified Blank				Run: IC METROHM_170915A			09/15/17 10:13	
Chloride	24.1	mg/L	1.0	96	90	110			
Sulfate	96.4	mg/L	1.0	96	90	110			
Lab ID: H17090322-005AMS	Sample Matrix Spike				Run: IC METROHM_170915A			09/16/17 09:45	
Chloride	30.6	mg/L	1.0	99	90	110			
Sulfate	130	mg/L	1.0	98	90	110			
Lab ID: H17090322-005AMSD	Sample Matrix Spike Duplicate				Run: IC METROHM_170915A			09/16/17 09:59	
Chloride	30.6	mg/L	1.0	99	90	110	0.2	20	
Sulfate	130	mg/L	1.0	98	90	110	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_170919A	
Lab ID: ICV	Initial Calibration Verification Standard								09/19/17 09:04
Nitrogen, Nitrate+Nitrite as N	1.03	mg/L	0.010	103	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								09/19/17 11:41
Nitrogen, Nitrate+Nitrite as N	0.496	mg/L	0.010	99	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								09/19/17 11:58
Nitrogen, Nitrate+Nitrite as N	0.495	mg/L	0.010	99	90	110			
Method: E353.2								Batch: R128598	
Lab ID: MBLK	Method Blank				Run: FIA203-HE_170919A				09/19/17 09:05
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.007						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-HE_170919A				09/19/17 09:07
Nitrogen, Nitrate+Nitrite as N	1.02	mg/L	0.011	102	90	110			
Lab ID: H17090207-001DDUP	Sample Duplicate				Run: FIA203-HE_170919A				09/19/17 09:09
Nitrogen, Nitrate+Nitrite as N	0.0717	mg/L	0.010				4.4	20	
Lab ID: H17090320-004DMS	Sample Matrix Spike				Run: FIA203-HE_170919A				09/19/17 11:44
Nitrogen, Nitrate+Nitrite as N	1.08	mg/L	0.011	99	90	110			
Lab ID: H17090320-004DMSD	Sample Matrix Spike Duplicate				Run: FIA203-HE_170919A				09/19/17 11:46
Nitrogen, Nitrate+Nitrite as N	1.09	mg/L	0.011	100	90	110	1.2	20	
Lab ID: H17090322-005CMS	Sample Matrix Spike				Run: FIA203-HE_170919A				09/19/17 12:13
Nitrogen, Nitrate+Nitrite as N	1.03	mg/L	0.011	98	90	110			
Lab ID: H17090322-005CMSD	Sample Matrix Spike Duplicate				Run: FIA203-HE_170919A				09/19/17 12:15
Nitrogen, Nitrate+Nitrite as N	1.05	mg/L	0.011	101	90	110	2.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R128534	
Lab ID: 091817_CCV_03	Continuing Calibration Verification Standard							09/18/17 10:41	
trans-1,4-Dichloro-2-butene	4.46	ug/L	0.50	89	70	130			
Acetone	39.9	ug/L	10	80	70	130			
Acrylonitrile	38.3	ug/L	20	77	70	130			
Benzene	5.13	ug/L	0.50	103	70	130			
Bromochloromethane	4.51	ug/L	0.50	90	70	130			
Bromodichloromethane	5.35	ug/L	0.50	107	70	130			
Bromoform	5.48	ug/L	0.50	110	70	130			
Bromomethane	5.48	ug/L	0.50	110	70	130			
Carbon disulfide	5.24	ug/L	0.50	105	70	130			
Carbon tetrachloride	5.16	ug/L	0.50	103	70	130			
Chlorobenzene	5.04	ug/L	0.50	101	70	130			
Chlorodibromomethane	4.70	ug/L	0.50	94	70	130			
Chloroethane	4.68	ug/L	0.50	94	70	130			
Chloroform	5.03	ug/L	0.50	101	80	120			
Chloromethane	3.93	ug/L	0.50	79	70	130			
1,2-Dibromo-3-chloropropane	5.37	ug/L	0.50	107	70	130			
1,2-Dibromoethane	4.64	ug/L	0.50	93	70	130			
Dibromomethane	5.01	ug/L	0.50	100	70	130			
1,2-Dichlorobenzene	5.24	ug/L	0.50	105	70	130			
1,4-Dichlorobenzene	5.35	ug/L	0.50	107	70	130			
Dichlorodifluoromethane	4.88	ug/L	0.50	98	70	130			
1,1-Dichloroethane	4.89	ug/L	0.50	98	70	130			
1,2-Dichloroethane	4.47	ug/L	0.50	89	70	130			
1,1-Dichloroethene	5.37	ug/L	0.50	107	80	120			
cis-1,2-Dichloroethene	5.01	ug/L	0.50	100	70	130			
trans-1,2-Dichloroethene	5.25	ug/L	0.50	105	70	130			
1,2-Dichloropropane	4.96	ug/L	0.50	99	80	120			
cis-1,3-Dichloropropene	5.20	ug/L	0.50	104	70	130			
trans-1,3-Dichloropropene	5.07	ug/L	0.50	101	70	130			
Ethylbenzene	5.56	ug/L	0.50	111	80	120			
2-Hexanone	40.4	ug/L	10	81	70	130			
Iodomethane	3.38	ug/L	0.50	68	70	130			S
Methyl ethyl ketone	39.2	ug/L	10	78	70	130			
Methyl isobutyl ketone	41.2	ug/L	10	82	70	130			
Methylene chloride	4.68	ug/L	0.50	94	70	130			
Styrene	5.01	ug/L	0.50	100	70	130			
1,1,1,2-Tetrachloroethane	4.90	ug/L	0.50	98	70	130			
1,1,2,2-Tetrachloroethane	5.50	ug/L	0.50	110	70	130			
Tetrachloroethene	5.42	ug/L	0.50	108	70	130			
Toluene	5.59	ug/L	0.50	112	80	120			
1,1,1-Trichloroethane	5.33	ug/L	0.50	107	70	130			
1,1,2-Trichloroethane	5.08	ug/L	0.50	102	70	130			
Trichloroethene	5.63	ug/L	0.50	113	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R128534
Lab ID: 091817_CCV_03	Continuing Calibration Verification Standard								09/18/17 10:41
Trichlorofluoromethane	4.88	ug/L	0.50	98	70	130			
1,2,3-Trichloropropane	5.63	ug/L	0.50	113	70	130			
Vinyl acetate	4.16	ug/L	0.50	83	70	130			
Vinyl chloride	4.64	ug/L	0.50	93	80	120			
m+p-Xylenes	10.5	ug/L	0.50	105	70	130			
o-Xylene	5.07	ug/L	0.50	101	70	130			
Xylenes, Total	15.6	ug/L	0.50	104	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	87	69	131			
Surr: Dibromofluoromethane			1.0	88	70	125			
Surr: p-Bromofluorobenzene			1.0	109	76	123			
Surr: Toluene-d8			1.0	103	80	119			
Method: SW8260B									Batch: R128534
Lab ID: 091817_LCS_04	Laboratory Control Sample				Run: 5973MSD_170918A				09/18/17 11:29
trans-1,4-Dichloro-2-butene	4.43	ug/L	0.50	89	67	127			
Acetone	43.0	ug/L	10	86	57	107			
Acrylonitrile	41.4	ug/L	20	83	34	117			
Benzene	4.65	ug/L	0.50	93	78	115			
Bromochloromethane	4.15	ug/L	0.50	83	62	111			
Bromodichloromethane	4.80	ug/L	0.50	96	77	109			
Bromoform	4.72	ug/L	0.50	94	65	130			
Bromomethane	6.18	ug/L	0.50	124	51	136			
Carbon disulfide	3.84	ug/L	0.50	77	71	135			
Carbon tetrachloride	4.58	ug/L	0.50	92	77	114			
Chlorobenzene	4.76	ug/L	0.50	95	77	127			
Chlorodibromomethane	4.16	ug/L	0.50	83	70	122			
Chloroethane	5.28	ug/L	0.50	106	62	135			
Chloroform	4.53	ug/L	0.50	91	70	115			
Chloromethane	5.03	ug/L	0.50	101	72	146			
1,2-Dibromo-3-chloropropane	5.00	ug/L	0.50	100	66.8	108			
1,2-Dibromoethane	4.28	ug/L	0.50	86	68	116			
Dibromomethane	4.61	ug/L	0.50	92	69	118			
1,2-Dichlorobenzene	4.88	ug/L	0.50	98	74	122			
1,4-Dichlorobenzene	5.01	ug/L	0.50	100	70	116			
Dichlorodifluoromethane	6.15	ug/L	0.50	123	57	143			
1,1-Dichloroethane	4.28	ug/L	0.50	86	63	121			
1,2-Dichloroethane	4.06	ug/L	0.50	81	69	131			
1,1-Dichloroethene	4.87	ug/L	0.50	97	67	121			
cis-1,2-Dichloroethene	4.53	ug/L	0.50	91	73	118			
trans-1,2-Dichloroethene	4.66	ug/L	0.50	93	75	124			
1,2-Dichloropropane	4.67	ug/L	0.50	93	75	124			
cis-1,3-Dichloropropene	4.95	ug/L	0.50	99	73	124			
trans-1,3-Dichloropropene	4.50	ug/L	0.50	90	69	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R128534
Lab ID: 091817_LCS_04	Laboratory Control Sample				Run: 5973MSD_170918A				09/18/17 11:29
Ethylbenzene	5.15	ug/L	0.50	103	74	125			
2-Hexanone	42.1	ug/L	10	84	70	128			
Iodomethane	3.21	ug/L	0.50	64	56	114			
Methyl ethyl ketone	39.1	ug/L	10	78	63	110			
Methyl isobutyl ketone	43.5	ug/L	10	87	67	124			
Methylene chloride	4.34	ug/L	0.50	87	61	125			
Styrene	4.63	ug/L	0.50	93	75	120			
1,1,1,2-Tetrachloroethane	4.52	ug/L	0.50	90	76	122			
1,1,2,2-Tetrachloroethane	4.98	ug/L	0.50	100	67	124			
Tetrachloroethene	4.85	ug/L	0.50	97	75	126			
Toluene	5.06	ug/L	0.50	101	80	120			
1,1,1-Trichloroethane	4.98	ug/L	0.50	100	75	121			
1,1,2-Trichloroethane	4.69	ug/L	0.50	94	70	114			
Trichloroethene	5.17	ug/L	0.50	103	72	126			
Trichlorofluoromethane	5.65	ug/L	0.50	113	78	134			
1,2,3-Trichloropropane	4.78	ug/L	0.50	96	62	118			
Vinyl acetate	5.09	ug/L	0.50	102	59	147			
Vinyl chloride	5.82	ug/L	0.50	116	72	134			
m+p-Xylenes	9.80	ug/L	0.50	98	80	120			
o-Xylene	4.89	ug/L	0.50	98	74	123			
Xylenes, Total	14.7	ug/L	0.50	98	72	124			
Surr: 1,2-Dichloroethane-d4			1.0	86	69	131			
Surr: Dibromofluoromethane			1.0	89	70	125			
Surr: p-Bromofluorobenzene			1.0	110	76	123			
Surr: Toluene-d8			1.0	105	80	119			
Lab ID: 091817_MBLK_06	Method Blank				Run: 5973MSD_170918A				09/18/17 12:32
trans-1,4-Dichloro-2-butene	ND	ug/L	0.50						
Acetone	ND	ug/L	10						
Acrylonitrile	ND	ug/L	20						
Benzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon disulfide	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R128534
Lab ID: 091817_MBLK_06	Method Blank				Run: 5973MSD_170918A				09/18/17 12:32
1,2-Dibromoethane	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
2-Hexanone	ND	ug/L	10						
Iodomethane	ND	ug/L	0.50						
Methyl ethyl ketone	ND	ug/L	10						
Methyl isobutyl ketone	ND	ug/L	10						
Methylene chloride	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl acetate	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	100	69	131			
Surr: Dibromofluoromethane			1.0	93	70	125			
Surr: p-Bromofluorobenzene			1.0	109	76	123			
Surr: Toluene-d8			1.0	99	80	119			
Lab ID: H17090322-004DMS	Sample Matrix Spike				Run: 5973MSD_170918A				09/18/17 16:31
trans-1,4-Dichloro-2-butene	7.97	ug/L	1.0	80	67	127			
Acetone	85.2	ug/L	20	85	57	107			
Acrylonitrile	77.5	ug/L	40	78	34	117			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R128534
Lab ID: H17090322-004DMS	Sample Matrix Spike				Run: 5973MSD_170918A				09/18/17 16:31
Benzene	9.46	ug/L	0.50	93	78	115			
Bromochloromethane	8.46	ug/L	0.50	85	62	111			
Bromodichloromethane	9.70	ug/L	0.50	97	77	109			
Bromoform	9.20	ug/L	0.50	92	65	130			
Bromomethane	11.4	ug/L	0.50	114	51	136			
Carbon disulfide	7.50	ug/L	0.50	75	71	135			
Carbon tetrachloride	9.34	ug/L	0.50	93	77	114			
Chlorobenzene	9.39	ug/L	0.50	94	77	127			
Chlorodibromomethane	8.25	ug/L	0.50	83	70	122			
Chloroethane	9.61	ug/L	0.50	96	62	135			
Chloroform	9.26	ug/L	0.50	93	70	115			
Chloromethane	8.78	ug/L	0.50	88	72	146			
1,2-Dibromo-3-chloropropane	9.93	ug/L	1.0	99	66.8	108			
1,2-Dibromoethane	8.79	ug/L	0.50	88	68	116			
Dibromomethane	9.25	ug/L	0.50	93	69	118			
1,2-Dichlorobenzene	9.84	ug/L	0.50	98	74	122			
1,4-Dichlorobenzene	9.94	ug/L	0.50	99	70	116			
Dichlorodifluoromethane	11.5	ug/L	0.50	115	57	143			
1,1-Dichloroethane	8.55	ug/L	0.50	85	63	121			
1,2-Dichloroethane	8.69	ug/L	0.50	87	69	131			
1,1-Dichloroethene	9.57	ug/L	0.50	96	67	121			
cis-1,2-Dichloroethene	13.4	ug/L	0.50	89	73	118			
trans-1,2-Dichloroethene	9.09	ug/L	0.50	91	75	124			
1,2-Dichloropropane	8.99	ug/L	0.50	90	75	124			
cis-1,3-Dichloropropene	9.72	ug/L	0.50	97	73	124			
trans-1,3-Dichloropropene	8.71	ug/L	0.50	87	69	120			
Ethylbenzene	9.89	ug/L	0.50	99	74	125			
2-Hexanone	84.1	ug/L	20	84	70	128			
Iodomethane	6.27	ug/L	0.50	63	56	114			
Methyl ethyl ketone	77.6	ug/L	20	78	63	110			
Methyl isobutyl ketone	86.6	ug/L	20	87	67	124			
Methylene chloride	8.82	ug/L	1.0	88	61	125			
Styrene	9.11	ug/L	0.50	91	75	120			
1,1,1,2-Tetrachloroethane	8.64	ug/L	0.50	86	76	122			
1,1,2,2-Tetrachloroethane	9.90	ug/L	0.50	99	67	124			
Tetrachloroethene	9.23	ug/L	0.50	92	75	126			
Toluene	9.93	ug/L	0.50	99	80	120			
1,1,1-Trichloroethane	9.85	ug/L	0.50	99	75	121			
1,1,2-Trichloroethane	9.31	ug/L	0.50	93	70	114			
Trichloroethene	10.1	ug/L	0.50	100	72	126			
Trichlorofluoromethane	10.7	ug/L	0.50	107	78	134			
1,2,3-Trichloropropane	10.2	ug/L	0.50	102	62	118			
Vinyl acetate	10.0	ug/L	0.50	100	59	147			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/03/17
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R128534	
Lab ID: H17090322-004DMS	Sample Matrix Spike				Run: 5973MSD_170918A			09/18/17 16:31	
Vinyl chloride	10.6	ug/L	0.50	106	72	134			
m+p-Xylenes	19.1	ug/L	1.0	95	80	120			
o-Xylene	9.45	ug/L	0.50	95	74	123			
Xylenes, Total	28.5	ug/L	0.50	95	72	124			
Surr: 1,2-Dichloroethane-d4			2.0	92	69	131			
Surr: Dibromofluoromethane			2.0	93	70	125			
Surr: p-Bromofluorobenzene			2.0	109	76	123			
Surr: Toluene-d8			2.0	102	80	119			
Lab ID: H17090322-004DMSD	Sample Matrix Spike Duplicate				Run: 5973MSD_170918A			09/18/17 16:59	
trans-1,4-Dichloro-2-butene	8.60	ug/L	1.0	86	67	127	7.7	20	
Acetone	102	ug/L	20	102	57	107	18	20	
Acrylonitrile	93.7	ug/L	40	94	34	117	19	20	
Benzene	9.46	ug/L	0.50	93	78	115	0.0	20	
Bromochloromethane	9.03	ug/L	0.50	90	62	111	6.5	20	
Bromodichloromethane	10.1	ug/L	0.50	101	77	109	4.2	20	
Bromoform	10.2	ug/L	0.50	102	65	130	10	20	
Bromomethane	12.3	ug/L	0.50	123	51	136	8.2	20	
Carbon disulfide	7.15	ug/L	0.50	71	71	135	4.8	20	
Carbon tetrachloride	9.09	ug/L	0.50	91	77	114	2.7	20	
Chlorobenzene	9.39	ug/L	0.50	94	77	127	0.0	20	
Chlorodibromomethane	9.14	ug/L	0.50	91	70	122	10	20	
Chloroethane	9.37	ug/L	0.50	94	62	135	2.5	20	
Chloroform	9.38	ug/L	0.50	94	70	115	1.2	20	
Chloromethane	9.06	ug/L	0.50	91	72	146	3.2	20	
1,2-Dibromo-3-chloropropane	10.8	ug/L	1.0	108	66.8	108	8.1	20	
1,2-Dibromoethane	9.40	ug/L	0.50	94	68	116	6.7	20	
Dibromomethane	9.71	ug/L	0.50	97	69	118	4.8	20	
1,2-Dichlorobenzene	10.1	ug/L	0.50	101	74	122	2.7	20	
1,4-Dichlorobenzene	9.94	ug/L	0.50	99	70	116	0.0	20	
Dichlorodifluoromethane	11.2	ug/L	0.50	112	57	143	3.1	20	
1,1-Dichloroethane	8.54	ug/L	0.50	85	63	121	0.1	20	
1,2-Dichloroethane	9.33	ug/L	0.50	93	69	131	7.1	20	
1,1-Dichloroethene	9.31	ug/L	0.50	93	67	121	2.7	20	
cis-1,2-Dichloroethene	13.3	ug/L	0.50	88	73	118	0.7	20	
trans-1,2-Dichloroethene	8.93	ug/L	0.50	89	75	124	1.8	20	
1,2-Dichloropropane	9.20	ug/L	0.50	92	75	124	2.2	20	
cis-1,3-Dichloropropene	10.2	ug/L	0.50	102	73	124	4.6	20	
trans-1,3-Dichloropropene	9.66	ug/L	0.50	97	69	120	10	20	
Ethylbenzene	9.59	ug/L	0.50	96	74	125	3.0	20	
2-Hexanone	105	ug/L	20	105	70	128	22	20	R
Iodomethane	6.97	ug/L	0.50	70	56	114	11	20	
Methyl ethyl ketone	99.9	ug/L	20	100	63	110	25	20	R

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/03/17
Project: Mister M Landfill
Work Order: H17090322

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R128534
Lab ID: H17090322-004DMSD	Sample Matrix Spike Duplicate				Run: 5973MSD_170918A				09/18/17 16:59
Methyl isobutyl ketone	107	ug/L	20	107	67	124	21	20	R
Methylene chloride	9.07	ug/L	1.0	91	61	125	2.8	20	
Styrene	9.23	ug/L	0.50	92	75	120	1.3	20	
1,1,1,2-Tetrachloroethane	9.03	ug/L	0.50	90	76	122	4.4	20	
1,1,2,2-Tetrachloroethane	11.1	ug/L	0.50	111	67	124	12	20	
Tetrachloroethene	8.93	ug/L	0.50	89	75	126	3.3	20	
Toluene	9.61	ug/L	0.50	96	80	120	3.2	20	
1,1,1-Trichloroethane	9.74	ug/L	0.50	97	75	121	1.2	20	
1,1,2-Trichloroethane	10.5	ug/L	0.50	105	70	114	12	20	
Trichloroethene	9.37	ug/L	0.50	93	72	126	7.1	20	
Trichlorofluoromethane	10.2	ug/L	0.50	102	78	134	4.2	20	
1,2,3-Trichloropropane	11.2	ug/L	0.50	112	62	118	8.8	20	
Vinyl acetate	12.1	ug/L	0.50	121	59	147	19	20	
Vinyl chloride	10.5	ug/L	0.50	105	72	134	0.5	20	
m+p-Xylenes	18.4	ug/L	1.0	92	80	120	3.8	20	
o-Xylene	9.24	ug/L	0.50	92	74	123	2.3	20	
Xylenes, Total	27.6	ug/L	0.50	92	72	124	3.3	20	
Surr: 1,2-Dichloroethane-d4			2.0	101	69	131			
Surr: Dibromofluoromethane			2.0	95	70	125			
Surr: p-Bromofluorobenzene			2.0	109	76	123			
Surr: Toluene-d8			2.0	99	80	119			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

Work Order Receipt Checklist

MT-DEQ Solid Waste Section

H17090322

Login completed by: Amanda B. Carlson
Reviewed by: BL2000\wjohnson
Reviewed Date: 10/3/2017

Date Received: 9/15/2017
Received by: JCS
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	5.0°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Samples for Dissolved Metals were subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. abc 9/15/17

Chain of Custody & Analytical Request Record

ENERGY LABORATORIES — Trust our People. Trust our Data.

www.energylab.com

Page 1 of 1

Account Information (Billing information)

Company/Name	Montana DEQ/Solid Waste
Contact	John Collins
Phone	406 444 2802
Mailing Address	
City, State, Zip	
Email	jcollins3@mt.gov
Receive Invoice	☐Hard Copy ☑Email
Receive Report	☐Hard Copy ☑Email
Purchase Order	
Quote	
Bottle Order	

Report Information (if different than Account Information)

Company/Name	Same
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

Project Information

Project Name, PWSID, Permit, etc.	Mister M Landfill
Sampler Name	John Collins
Sampler Phone	SAA
Sample Origin State	MT
EPA/State Compliance	☑Yes ☐No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	VOC's 8260	Wilsey Major Ions	Cl, SO4, pH, Spec Cond	Dissolved Metals	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	mw-12 (twelve)	9-14-17	12:10	6	W	✓	✓	✓				H17090327
2	mw-11 (eleven)	"	14:05	6	W	✓	✓	✓				
3	mw-9r (replacement)	"	15:00	6	W	✓	✓	✓				
4	mw-8w	"	15:45	6	W	✓	✓	✓				
5	mw-10w	"	16:30	6	W	✓	✓	✓				
6												
7												
8												
9												
10												

Metals Not Filtered at Pres.

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	John Collins	9/15/17 1418				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Jessica Smith	9-15-17 14:14	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On-Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	128	Y (N) C B	Y N	5.0 °C	(Y) N	(Y) N	CC Cash Check	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

Table 1: Analytical Parameters

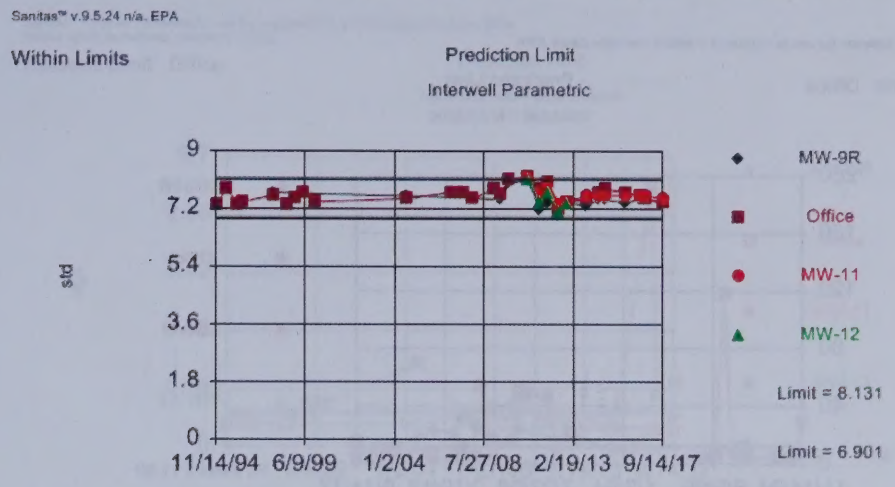
# of Samples				
	Inorganics			
6	***Chloride***	***Sulfate***	***pH***	***Specific conductance***
5	**Nitrate + Nitrite (as N)**			
	Dissolved Metals			
4	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)
	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)
	Lead (Pb)	Nickel (Ni)	Selenium (Se)	Silver (Ag)
	Thallium (Th)	Vanadium (V)		
5	*Iron (Fe)*	*Zinc (Zn)*		

6 Volatile Organic Compounds (VOCs by EPA method 8260)

Acetone	***Acrylonitrile***
Benzene	***Bromochloromethane***
Bromodichloromethane	***Bromoform***
Bromomethane (Methyl bromide)	***Carbon disulfide***
Carbon tetrachloride	***Chlorobenzene***
Chlorodibromomethane	***Chloroethane***
Chloroform	***Chloromethane (Methyl chloride)***
1,2-Dibromo-3-chloropropane (DCBP)	***1,2-Dibromoethane (EDB)***
Dibromomethane (Methylene bromide)	***1,2-Dichlorobenzene***
1,4-Dichlorobenzene	***trans-1,4-Dichloro-2-butene***
1,1-Dichloroethane	***1,2-Dichloroethane***
1,1-Dichloroethene	***cis-1,2-Dichloroethene***
trans-1,2-Dichloroethene	***Dichlorodifluoromethane***
1,2-Dichloropropane	***cis-1,3-Dichloropropene***
trans-1,3-Dichloropropene	***Ethylbenzene***
2-Hexanone (Methyl butyl ketone)	***Iodomethane (Methyl iodide)***
Methylene chloride	***Methyl ethyl ketone (MEK)***
4-Methyl-2-pentanone (Metyl isobutyl ketone)	***Styrene***
1,1,1,2-Tetrachloroethane	***1,1,2,2-Tetrachloroethane***
Tetrachloroethene	***Toluene***
1,1,1-Trichloroethane	***1,1,2-Trichloroethane***
Trichloroethene	***Trichlorofluoromethane***
1,2,3-Trichloropropane	***Vinyl acetate***
Vinyl chloride	***Total Xylenes***

APPENDIX B: RESULTS OF STATISTICAL ANALYSES

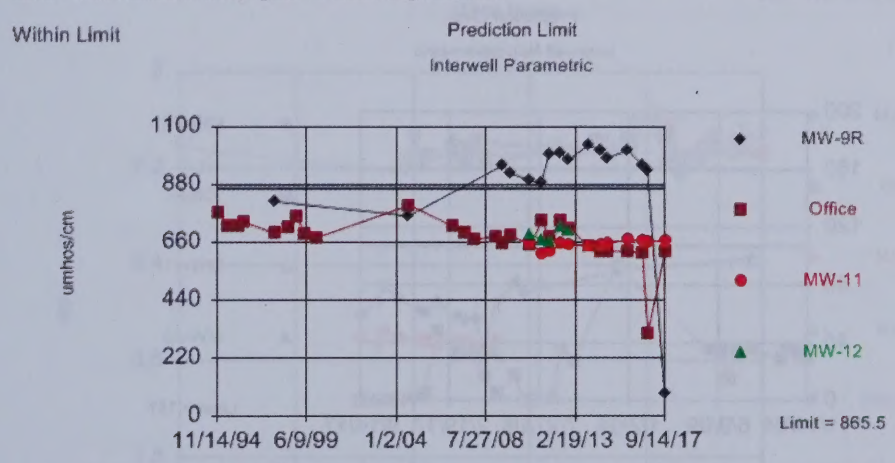
Figure F-1: Prediction Limit Analysis for pH



Background Data Summary: Mean=7.516, Std. Dev.=0.2265, n=29. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9749, critical = 0.926. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 10/5/2017 10:47 AM
A&E Landfill Client: Sanitas Workshop Data: 2017 09 sanitas

Figure F-2: Prediction Limit Analysis for Conductivity



Background Data Summary: Mean=771, Std. Dev.=39.26, n=29. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9427, critical = 0.926. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 10/5/2017 11:33 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2017 09 sanitas

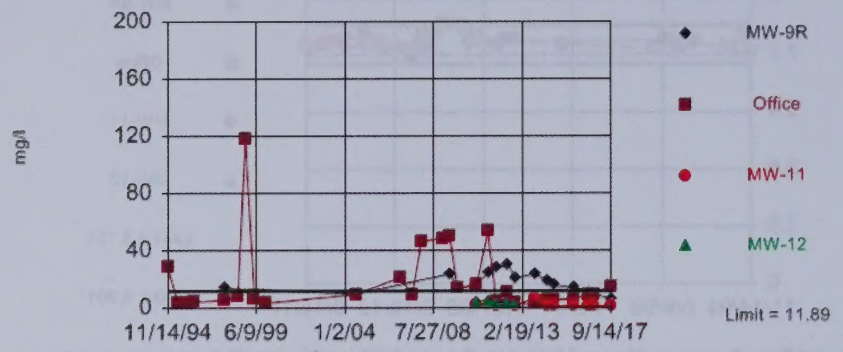
Figure F-3: Prediction Limit Analysis for Chloride

Sanitas™ v.9.5.32 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: Office

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.586, Std. Dev.=2.2, n=29. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9432, critical = 0.926. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 10/5/2017 11:59 AM

Mister M Landfill Client: GOVT. USE ONLY Data: 2017 09 sanitas

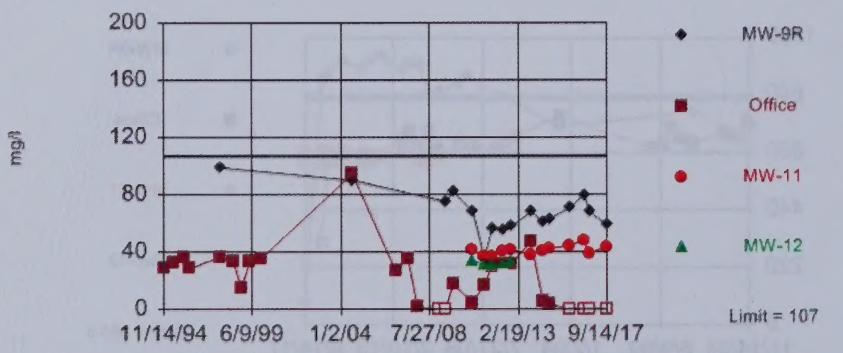
Figure F-3: Prediction Limit Analysis for Sulfate

Sanitas™ v.9.5.32 Software for use by regulators in official oversight duties. EPA.
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric

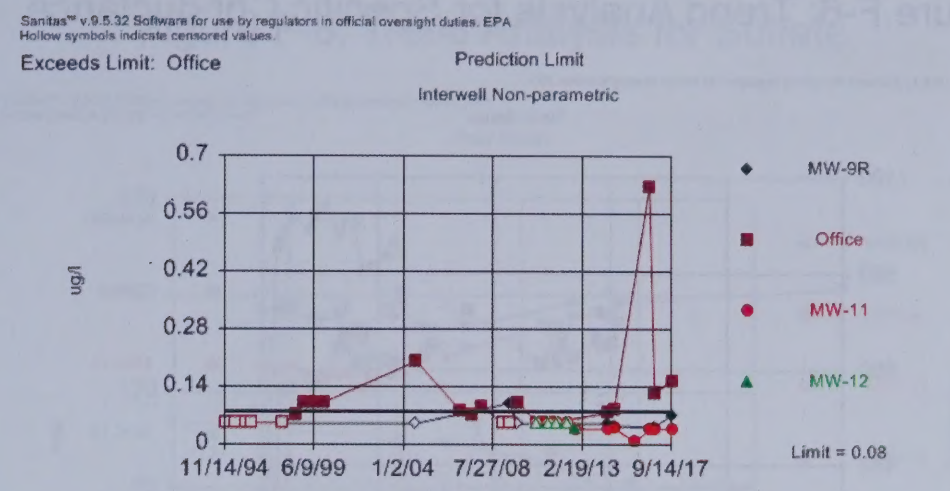


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 29 background values. Report alpha = 0.1212. Individual comparison alpha = 0.03179. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 10/5/2017 12:10 PM

Mister M Landfill Client: GOVT. USE ONLY Data: 2017 09 sanitas

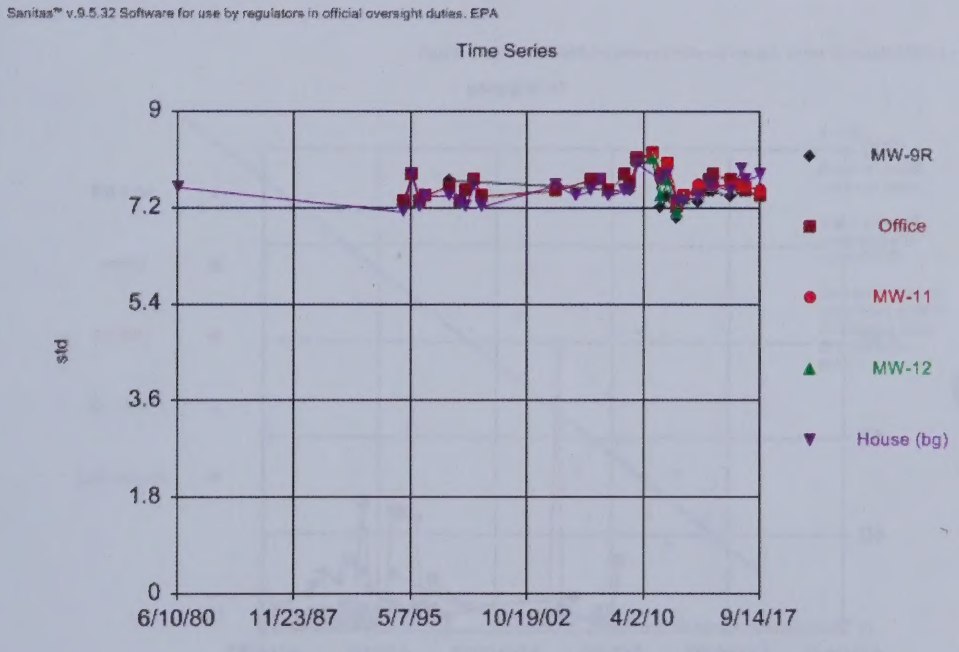
Figure F-4: Prediction Limit Analysis for Barium



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 28 background values. 57.14% NDs. Report alpha = 0.125. Individual comparison alpha = 0.03283. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Barium Analysis Run 10/5/2017 12:48 PM
Mister M Landfill Client: GOVT. USE ONLY Data: 2017 09 sanitas

Figure F-5: Trend Analysis for pH



Constituent: pH Analysis Run 10/5/2017 12:57 PM
Mister M Landfill Client: GOVT. USE ONLY Data: 2017 09 sanitas

Figure F-6: Trend Analysis for Specific Conductance

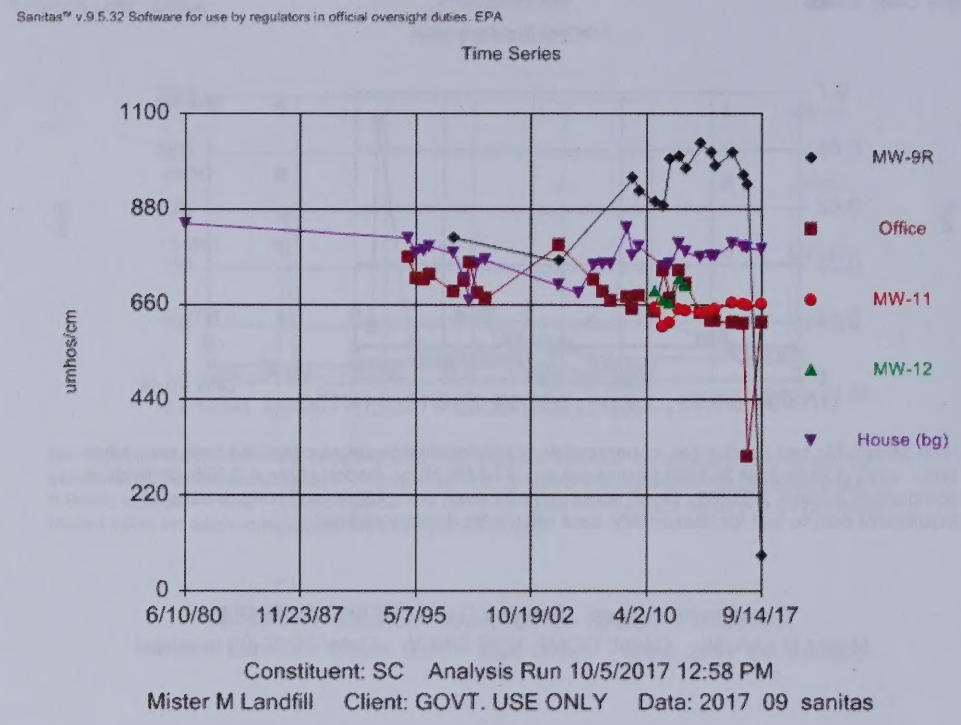


Figure F-7: Trend Analysis for Chloride

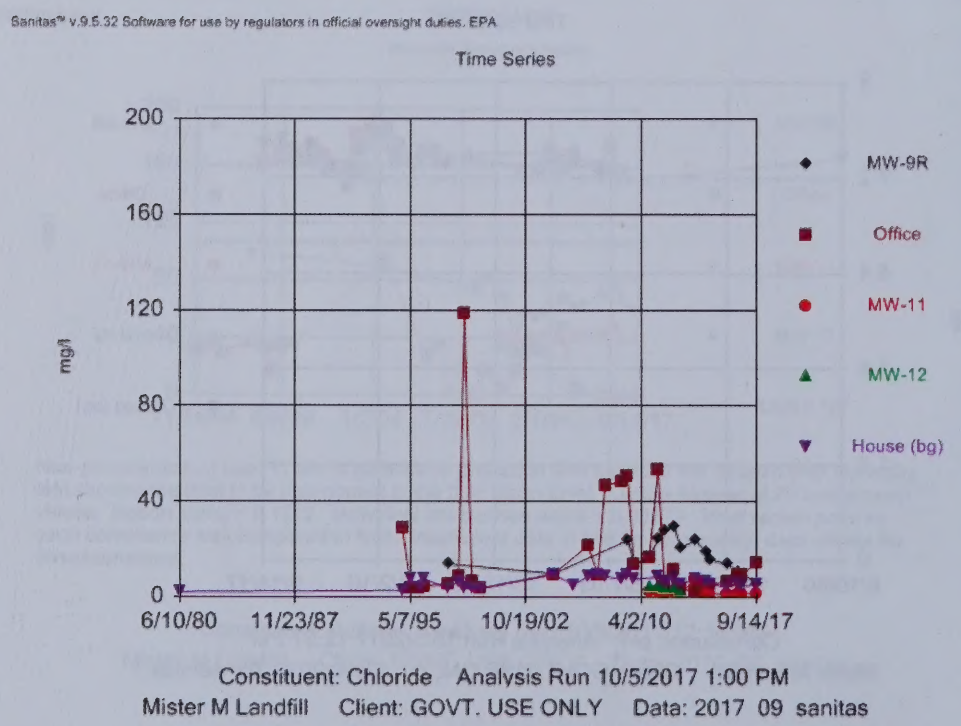


Figure F-8: Trend Analysis for Sulfate

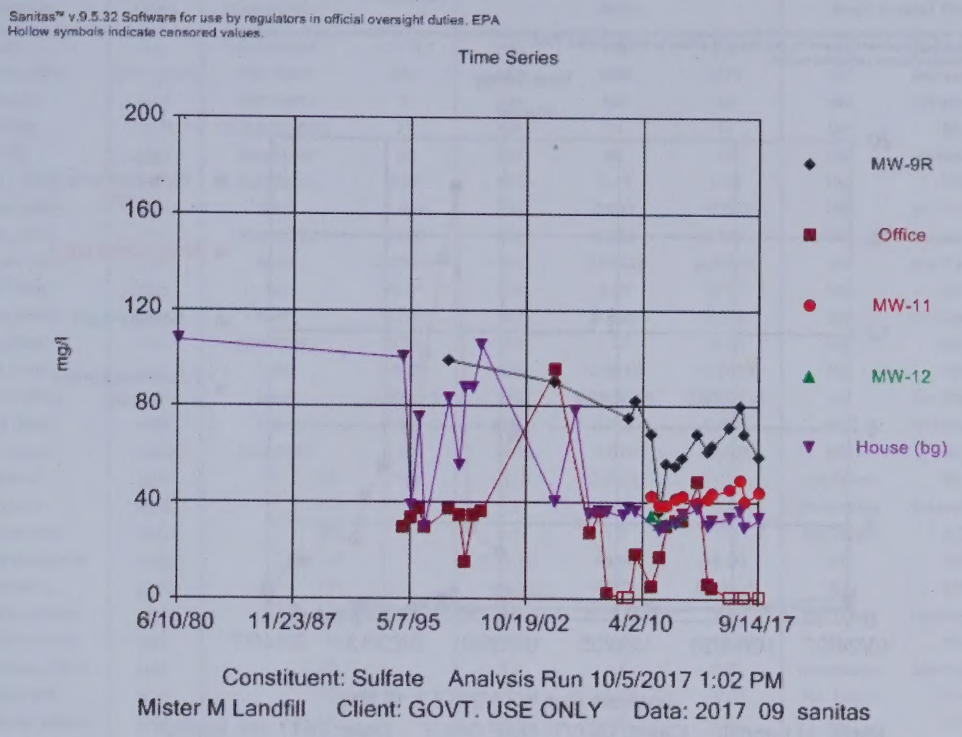


Figure F-8: Trend Analysis for Nitrate + Nitrite

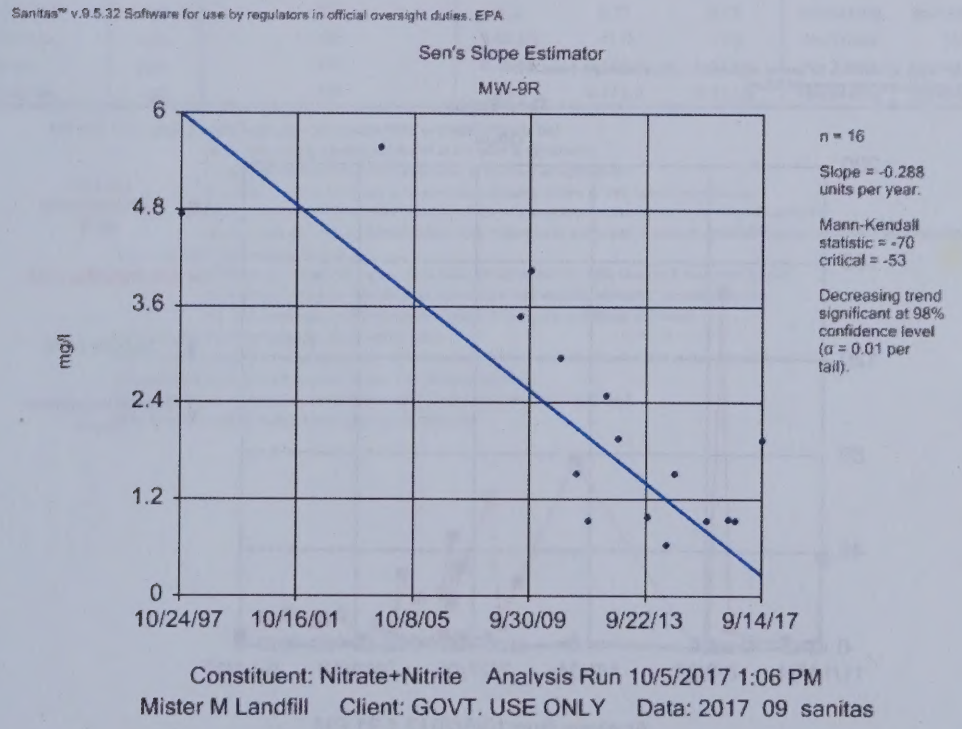


Figure F-9: Trend Analysis for selected VOC's in MW-9R

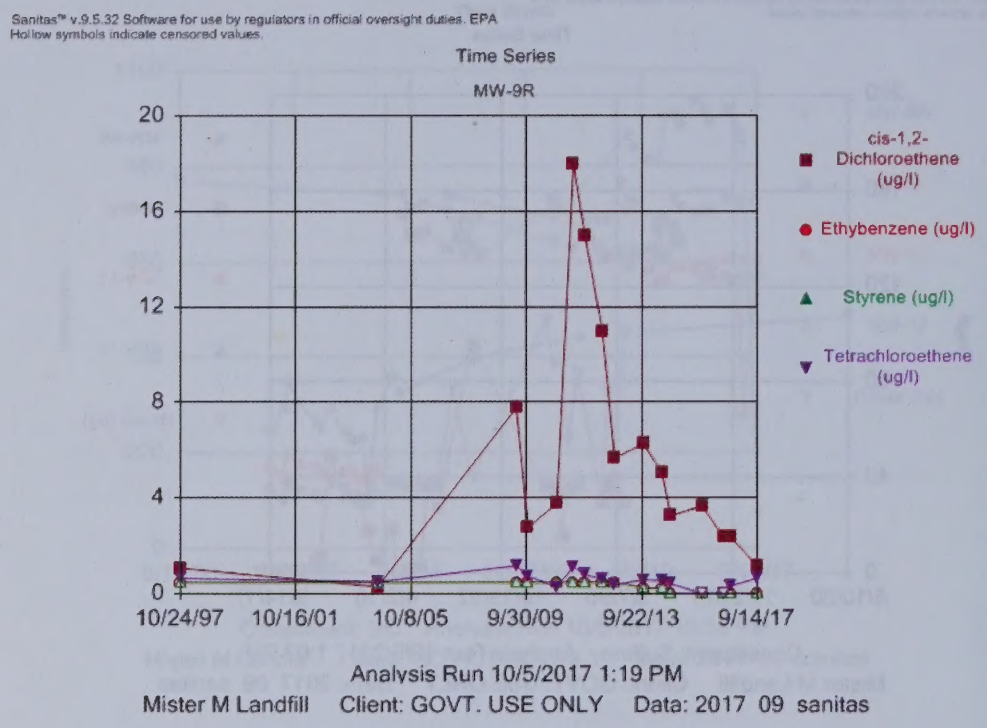


Figure F-10: Trend Analysis for selected VOC's in MW-OW

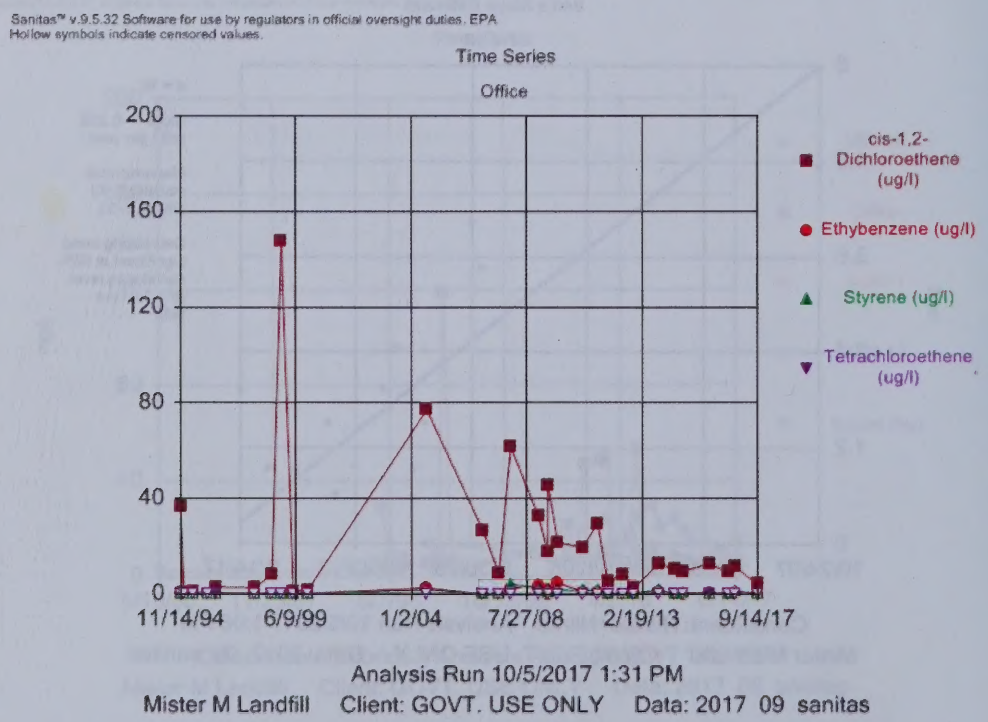


TABLE 2. OCTOBER 2017 PREDICTION LIMIT/TREND SUMMARY
Lake County Landfill, Polson Montana

Parameter	Units	L-7 Distribution [1]	L-7 Prediction Limit [2]	L-8	L-10	L-11	L-8	L-10	L-11
				Value			Mann Kendall Trend Test Result		
pH	s.u.	Non-Norm	7.3 - 8.2	NM	**7.0**	**7.0**	NM	**Decreasing**	**Decreasing**
SC (µmhos/cm)	µmhos/cm	Non-Norm	538	NM	**1660**	**1370**	NM	**Increasing**	**Increasing**
chloride	mg/L	Non-Norm	3	NM	**100**	**45**	NM	**Increasing**	**Increasing**
sulfate	mg/L	ln-Norm (99%)	21	NM	11	15	NM	NA	NA
COD	mg/L	Non-Norm	26	NM	**43**	**<4**	NM	**Increasing**	NA
nitrate + nitrite	mg/L	Non-Norm	5.27	NM	0.16	1.63	NM	NA	NA
arsenic (diss)	mg/L	Max^	0.001	NM	**0.002**	<0.001	NM	**No Trend^**	NA
barium (diss)	mg/L	Non-Norm	0.400	NM	**0.858**	**0.796**	NM	**Increasing**	**Increasing**
cadmium (diss)	mg/L	Max^	0.00009	NM	**0.00032**	**0.00013**	NM	**No Trend^**	**No Trend^**
cobalt (diss)	mg/L	ND	<0.01	NM	**0.01**	<0.01	NM	**NC**	NA
copper (diss)	mg/L	Max^	0.004	NM	**0.007**	0.003	NM	**Increasing^**	NA
iron (diss)	mg/L	Non-Norm	1.16	NM	0.45	<0.02	NM	NA	NA
lead (diss)	mg/L	Max^	0.0031	NM	0.0015	<0.0003	NM	NA	NA
mercury (diss)	mg/L	Max^	0.000013	NM	**0.0000268**	0.0000115	NM	**No Trend^**	NA
nickel (diss)	mg/L	Max^	0.002	NM	**0.017**	**0.004**	NM	**Increasing^**	**No Trend^**
zinc (diss)	mg/L	Non-Norm	0.030	NM	0.012	<0.008	NM	NA	NA
acetone	µg/L	ND		**12 (J)**	**3.3 (J)**	<20	**No Trend**	**NC**	NA
benzene	µg/L	ND		**1.6**	**0.82**	**1.3**	**Increasing**	**Increasing**	**Increasing**
chloroethane	µg/L	ND		**2.1**	**1.5**	**1.9**	**No Trend**	**NC**	**NC**
1,4-dichlorobenzene	µg/L	ND		**0.32 (J)**	<0.50	<0.50	**NC**	NA	NA
chloroform	µg/L	ND		<0.50	<0.50	**0.10 (J)**	NA	NA	**NC**
1,1-dichloroethane	µg/L	ND		**0.38 (J)**	**0.18 (J)**	**1.6**	**No Trend**	**Increasing**	**Increasing**
1,1-dichloroethene	µg/L	ND		<0.50	<0.50	**0.87 (J)**	NA	NA	**NC**
cis-1,2-dichloroethene	µg/L	ND		**4.3**	**1.3**	**3.3**	**Increasing**	**Increasing**	**Increasing**
ethylbenzene	µg/L	ND		**0.19 (J)**	<0.50	<0.50	**No Trend**	NA	NA
methyl isobutyl ketone	µg/L	ND		**1.0 (J)**	<20	<20	**NC**	NA	NA
methylene chloride	µg/L	ND		**1.10**	**0.45 (J)**	**8.4**	**No Trend**	**Increasing**	**Increasing**
tetrachloroethene	µg/L	ND		**0.22 (J)**	<0.50	**2.2**	**Increasing**	NA	**Increasing**
toluene	µg/L	ND		**0.21 (J)**	**0.087 (J)**	<0.50	**No Trend**	**NC**	NA
trichloroethene	µg/L	ND		**0.42 (J)**	<0.50	**0.82**	**Increasing**	NA	**Increasing**
trichlorofluoromethane	µg/L	ND		<0.50	<0.50	**0.93**	NA	NA	**No Trend**
vinyl chloride	µg/L	ND		**1.3**	**0.77**	**0.75**	**Increasing**	**Increasing**	**NC**
m+p-xylenes	µg/L	ND		**0.50 (J)**	<1.0	<1.0	**No Trend**	NA	NA
o-xylene	µg/L	ND		**0.49 (J)**	**0.17 (J)**	**0.26 (J)**	**No Trend**	**Increasing**	**Increasing**
total xylenes	µg/L	ND		**0.99**	**0.17 (J)**	**0.26 (J)**	**Increasing**	**Increasing**	**Increasing**

NOTES: [1] Normality was calculated using the Shapiro-Wilks or Shapiro-Francia test.

Norm (X%) = data normally distributed at X% level of significance

ln-Norm (X%) = data ln-normally distributed at X% level of significance

Non-Norm = data not normally or ln-normally distributed at 95% or 99% level of significance.

ND = all background data below detection limits. Any detectable concentration is considered significant.

Max = insufficient data at lower detection limits to determine distribution; maximum detectable background value set as prediction limit

[2] Prediction limits calculated as follows:

Normal or ln-normal distribution: parametric prediction interval (99% one-sided, two-sided for pH)

Non-normal distribution: non-parametric prediction interval (99% one-sided, two-sided for pH)

ND: any detectable concentrations in compliance wells are considered significant

Bold values indicate statistically significant results.

NM = not measured; NA = not analyzed; NC = Mann-Kendall trend not calculated due to lack of quantifiable results

(J) = estimated value (analyte present but less than the reporting limit).

*Trend statistic calculated using Sen's Slope Analysis rather than Mann-Kendall Trend

^Statistics calculated on recent lower detection limit data only

Correspondence Slip

Originator: JR

Date Requested: 10-13-17

Date Needed By: 10-30-17

REVIEW ROUTING

Name	Task	Initial/Date
Sara Nelson	Proof	GN 3/22/18
MLL		MLL 4-12
RT		RT 4-11-18

Mail original via:
~~O Regular O Certified O Registered O FedEx~~

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? Y (N)

Copies of enclosures for file needed? (Y) N

Copy of letter for file needed? (Y) N

Email copies sent? Y N

Special Instructions:

This is an internal report. Once review is completed, please file in Fergus Co./Misc. Items" - #302 Gen file.

EMAIL copy sent to Project Originator? Y N

CLOSED MISTER M LANDFILL, LICENSE #302

LEWISTOWN, FERGUS COUNTY, MONTANA

OCTOBER 2016 GROUNDWATER MONITORING RESULTS AND STATISTICAL ANALYSES

Prepared By:

Montana Department of Environmental Quality

Solid Waste Section

January 30, 2017

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1.0 INTRODUCTION

Groundwater monitoring at the closed Mister M Landfill, License #302, was conducted in October 2016 by the Department of Environmental Quality (DEQ), Solid Waste Section (SWS), according to the July 2011 Sampling and Analysis Plan for Groundwater (SAP) (MDEQ, 2011). The Mister M Landfill is located in Fergus County, Montana, approximately four miles east of Lewistown on US Highway 87. The landfill lies in a small south facing coulee which drains to Boyd Creek. The facility received Class II wastes from 1956 to 1998, and was granted interim closure status on December 5, 2000. The current owners, Marvin and Sandra Mintyala, operated the facility from 1974 until approximately 2000, when the site was abandoned.

According to the Geohydrologic Characterization (Gillespie, 1993 revised; and Gillespie, 1994) the landfill is underlain by the Kootenai formation, which consists of predominately shale with some silty sandstone. A basal unit of sandstone in the Kootenai formation is the uppermost aquifer in the area. Minor amounts of water have been encountered in the upper portions of the Kootenai formation but most of the monitoring wells completed in the upper Kootenai formation at the site have frequently been dry or contained minimal volumes of water.

Previous groundwater monitoring at the facility was conducted by the owners or their consultants from 1993-1999: Gillespie, 1995 and 1996; Energy Laboratories, 1997, 1998, and 1998; and Portage Environmental, 1999 and 2000. From 2003-2007 Tetra Tech, Inc. was authorized by the DEQ to conduct groundwater monitoring in the absence of action by the owners (Energy Laboratories, 2003-2007; Maxim, 2005; Tetra Tech, 2006 and 2008). DEQ SWS personnel have conducted groundwater monitoring from January 2009 to the present.

2.0 FIELD PROCEDURES

DEQ SWS personnel conducted monitoring activities on October 27 and 28, 2016. This included monitoring well inspections, Static Water Level (SWL) measurements, and groundwater sample collection as part of the detection monitoring program currently in effect for the facility. Copies of the field notes are in the SWS files. All field activities described in this report were conducted in accordance with the approved July 2011 SAP, and any deviations from the SAP are described herein. The analysis of groundwater samples was conducted by Energy Laboratories Inc., in Helena, Montana.

2.1 WELL INSPECTIONS

The monitoring wells currently in use were inspected on October 27, 2016. All locks have been replaced with keyed alike Master locks. MW-OW does not have an external protective casing. All other monitoring wells are in good condition.

2.2 WATER LEVEL MEASUREMENTS

Static water levels were measured on October 27, 2016, in wells MW-5, MW-9R, MW-11, MW-12, and MW-OW using a Slope Indicator electric water level meter. The total depths of wells MW-9R, MW-11, and MW-12 were also recorded.

2.3 GROUNDWATER SAMPLING

Groundwater samples were collected October 27, 2016, from wells MW-9R, MW-11, MW-12, MW-HW, and MW-OW. At each well, samples were collected for all of the parameters listed in the SAP. The wells were purged and sampled using disposable bailers. Field water quality measurements were made using an In-Situ Smart Troll 9500 water quality meter, which was calibrated by SWS personnel.

3.0 Monitoring Results

3.1 Groundwater Levels and Flow

The October 2016 water levels were very similar to the July 2016 levels, with the exception of the deep wells. The deep wells' water levels are historically variable and are based on relative elevations. Figure 4 displays the October 2016 static water levels on a map. No attempt was made to contour the static water levels as the shallow wells are completed in minor water bearing zones of unknown horizontal extent and connectivity, and the water level measurements made in the deep water bearing zone are from wells that have not yet been surveyed. Groundwater flow in the shallow water bearing zones likely follows local topography and flows in a south to southwest direction. Groundwater flow in the deep water bearing zone is assumed to be to the southwest based on records from domestic wells in the area. Tables containing historic water levels and hydrographs for both the shallow and deep water bearing zones are included in Appendix D.

3.2 Data Validation

Upon receipt from the laboratory, the analytical results were validated as described in the SAP to ensure that the data quality objectives had been met. All samples were analyzed within the required holding times. The relative percent difference for all field and laboratory duplicates were within control limits, and all control samples and blanks were acceptable.

3.3 Groundwater Analytical Results

A copy of the laboratory analytical report is included in Appendix A.

3.3.1 Indicator Parameters

Indicator parameters for the site continue to be stable with little fluctuations from those observed in the shallow background well MW-5 in previous sampling events and in other shallow wells.

3.3.2 Dissolved Metals

Arsenic, Barium, Cadmium, Iron and Zinc were detected at low levels in facility wells during this sampling event. None of the metals detected exceeded the groundwater protection standards.

3.3.3 Volatile Organic Compounds

Overall there do not appear to be any significant increasing trends in Volatile Organic Compounds (VOCs) at the site. MW-9R had a detection of cis-1, 2-Dichloroethene at 2.4 *u*g/l, which was the same concentration as the July 2016 event. The MW-OW continues to have sporadic detections of (concentrations in µg/l): cis-1, 2-Dichloroethene (12), Ethyl benzene (0.67), and Styrene (1.50). Detection of VOCs in other wells are at estimated values, J flagged by the Laboratory, which are below the detection limit.

4.0 Statistical Analysis

4.1 Statistical Methods

The statistical analyses were performed using the statistical software package Sanitas v.9.5. The validated analytical data was first screened to determine which parameters required statistical analysis. Only parameters which were detected in one or more compliance wells (MW-11 and MW-12) and had been historically detected at least once in the background well (MW-HW) were analyzed using an inter-well prediction limit. If a parameter was detected in a compliance well, but was always non-detected in the background dataset, the background value was set as the detection limit and any detection of that parameter above the detection limit was considered a statistical exceedance of background. As a result of the screening described above, the parameters selected for prediction limit analysis were: pH, Specific Conductivity, Chloride, Sulfate, Arsenic, Barium, Iron, and Zinc. Trend analysis was run for selected VOC's.

The background dataset was screened to determine if trends were present using the Sen's Slope/Mann Kendall test. Each selected parameter was compared to the background dataset using an inter-well prediction limit analysis. The Sanitas software determines the distribution of

the background dataset and performs the appropriate statistical test for that distribution. If the prediction limit analysis indicated an exceedance of background levels, a Sen's Slope/Mann Kendall test was conducted to analyze any trends in the data. All of the statistical tests were performed at a 95% site-wide confidence level, or the maximum confidence level that was possible given the size of the background dataset if a 95% confidence level was not possible.

A Sen's Slope/Mann Kendall test was also conducted on all parameters detected in all wells to analyze any trends in the data.

4.2 Analysis Results

Table 1 contains a summary of the results of the statistical analyses. The full results of the statistical analyses are included in Appendix F. Due to the small size of the background dataset the site-wide confidence levels for non-parametric tests were less than 95%.

The values from the current sampling event for all parameters in compliance wells MW-11 and MW-12 were within prediction limits.

Trend analyses for well MW-9R indicated non-significant decreasing trends for Sulfate and Nitrate + Nitrite. The cause of these trends is unknown, but MW-9R is completed in a shallow aquifer which produces very little water, thus temporal changes in groundwater chemistry are expected.

5.0 Conclusions and Recommendations

Water levels will continue to be monitored semi-annually in the future to provide additional data on water level trends.

Additional data from the background well, MW-HW, is useful for evaluating the results from the other deep wells and increasing the power of the statistical tests. MW-HW will be sampled on an annual basis to increase the size of the background dataset for the compliance wells. Three

VOCs were detected in MW-9R at much lower levels than previous sampling events and there appears to be an overall slightly downward trend. The contaminants present in MW-9R are different than those seen in MW-OW indicating that the contamination may be from a different source or MW-9R may be closer to the source area than MW-OW; however the precise source of these VOCs is unknown. Well MW-9R will continue to be sampled annually in future events for Inorganics and VOCs. Well MW-OW continues to show both inorganic and organic contamination. Sulfate and Chloride have returned to near normal levels, while Zinc and Iron concentrations remain slightly above normal levels. These metals are possibly the result of the galvanized well casing and or previous down-hole equipment associated with the use of MW-OW as a water supply well and not due to landfill leachate.

The analytical results and statistical analyses from compliance wells MW-11 and MW-12 show no impacts from landfill leachate. The one VOC, cis-1, 2-Dichloroethene, which was previously detected at a very low level in MW-12 was not detected during the past five sampling events. All parameters in the compliance wells are below background levels thus the facility remains in detection monitoring. MW-11 and MW-12 will be sampled annually as the point of compliance wells for the facility. The next groundwater sampling event is tentatively scheduled for July 2017. Thereafter the wells mentioned above will be sampled on an annual basis; the SAP will be updated to reflect that change.

6.0 REFERENCES

Gillespie, Robert W. P.E., 1993 revised, "Geohydrologic Characterization, Mister M Landfill, Lewistown, Montana"

Gillespie, Robert W. P.E, 1994, "Addendum to Site Characterization, Mister M Landfill, License No. 302, Lewistown, Montana"

Gillespie, Robert W. P.E, 1995, "Annual Groundwater Quality Report, Mister M Landfill Site, Lewistown, Montana"

Maxim Technologies, 2005, "November 2005 Groundwater Monitoring Field Notes, Mister M Landfill, Lewistown, Montana"

MDEQ, Solid Waste Program 2011, 2012, 2013, 2014, and 2015, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, Semi Annual Groundwater and Monitoring Results and Statistical Analyses"

Table 1: Summary of Results of Statistical Analyses for October 2016 Data

		Prediction Interval Analysis					Trend Analysis	
Parameter	**Well**	**Distribution**	**Confidence Level (%)**	**Prediction Limit(s)**	**Result**	**Exceeds Limit?**	**Slope (per yr)**	**Significant ?**
pH	MW-9R	normal	98	6.89-8.11	7.5	No	0.01	No
	MW-11	normal	98	6.89-8.11	7.6	No	0.16	No
	MW-12	normal	98	6.89-8.11	7.3	No	0.01	No
	MW-OW	normal	98	6.89-8.11	7.5	No	0.01	No
Specific Conductivity	MW-9R	normal	98	866.7	935	No	11.75	Yes
	MW-11	normal	98	866.7	659	No	5.32	Yes
	MW-12	normal	98	866.7	713	No	12.51	No
	MW-OW	normal	98	866.7	611	No	-5.17	Yes
Chloride	MW-9R	normal	98	12.01	10	No	0	No
	MW-11	normal	98	12.01	2	No	0	No
	MW-12	normal	98	12.01	3	No	0	No
	MW-OW	normal	98	12.01	10	No	0	No
Sulfate	MW-9R	normal	98	107	68	No	-1.54	No
	MW-11	normal	98	107	40	No	0.98	No
	MW-12	normal	98	107	30	No	0.5	No
	MW-OW	normal	98	107	*ND*	No	-1.17	Yes
Nitrate+Nitrite	MW-9R	normal	98	0.44	0.93	Yes	-0.34	Yes
Iron	MW-11	normal	98	0.75	*ND*	No	0	No
	MW-12	normal	N/A	0.75	*ND*	No	0	No
	MW-OW	normal	98	0.75	*ND*	No	0	No
Zinc	MW-12	normal	98	0.08	*ND*	No	0	No
	MW-OW	normal	98	0.08	*0.658*	Yes	0.02	Yes
cis-1,2-Dichloroethene	MW-9R	not normal	98	15.2	*2.4*	No	0.02	No
	MW-OW	not normal	98	37	12	No	0.28	No
Ethyl benzene	MW-OW	not normal	98	1	0.67	No	0	No
	MW-9R	NA	98	1	*ND*	No	-0.03	No
Styrene	MW-OW	not normal	98	1	1.5	No	0	No
Tetrachloroethene	MW-9R	NA	98	2.02	*ND*	No	-0.05	No

Notes:
N/A = Not analyzed
ND = Non-detect
N/A = Not applicable

FIGURES

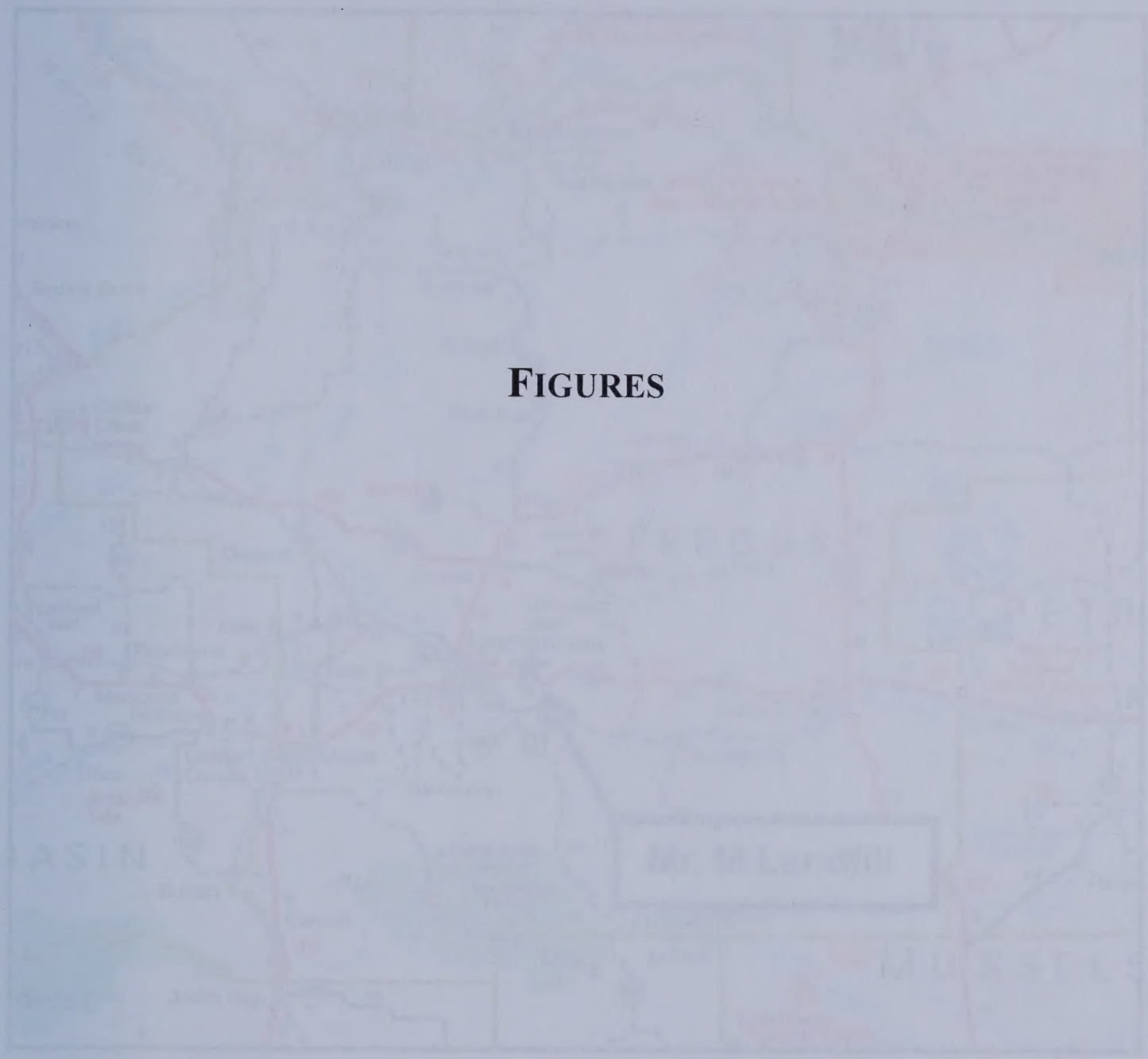


Figure 1: Location Map

Adapted from State of Montana Highway Map



Figure 1: Location Map

Adapted from State of Montana Highway Map.



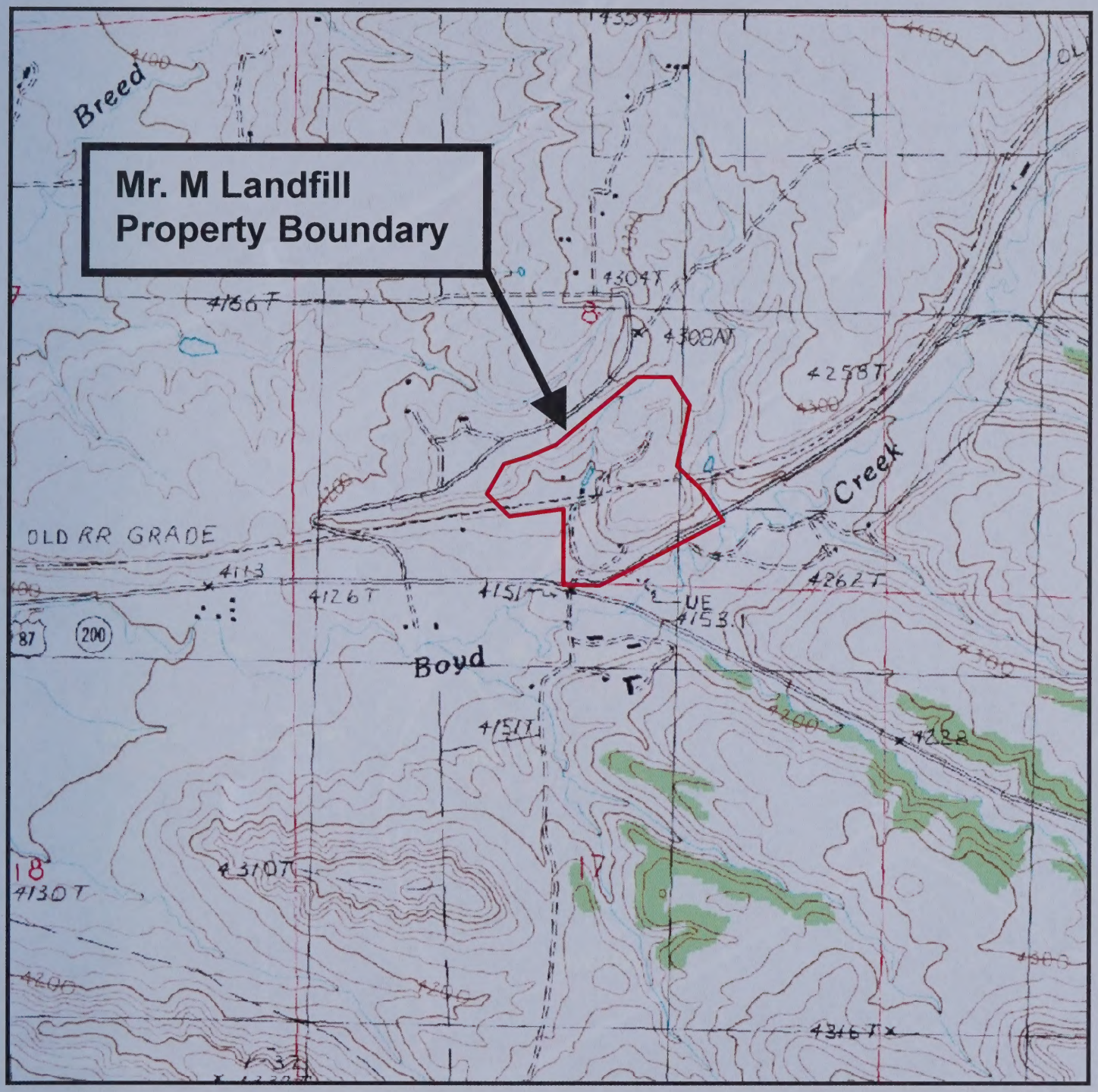


Figure 2: Facility Map

Adapted from USGS Pike Creek 24k Quadrangle.


Mr. M Landfill
Property Boundary



Figure 3: Locations of Monitoring Points

Base Aerial Photo from 2012.





Figure 4: Groundwater Levels

Base Aerial Photo from 2012.

The reference elevations for MW-9R, MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

APPENDIX A: LABORATORY ANALYTICAL REPORT

ANALYTICAL SUMMARY REPORT

November 11, 2016

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H16100556

Project Name: Mister M Landfill

Energy Laboratories Inc Helena MT received the following 6 samples for MT-DEQ Solid Waste Section on 10/28/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H16100556-001	MW-I2	10/27/16 11:50	10/28/16	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Mercury, Dissolved Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration Digestion, Mercury by CVAA 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16100556-002	MW-II	10/27/16 12:40	10/28/16	Aqueous	Same As Above
H16100556-003	MW-9r	10/27/16 14:00	10/28/16	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Mercury, Dissolved Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration Digestion, Mercury by CVAA 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16100556-004	MW-OW (Office Well)	10/27/16 14:45	10/28/16	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Mercury, Dissolved Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration Digestion, Mercury by CVAA 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16100556-005	MW-HW (House Well)	10/27/16 15:15	10/28/16	Aqueous	Same As Above
H16100556-006	TB 5927	10/27/16 11:50	10/28/16	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

ANALYTICAL SUMMARY REPORT

Report Approved By:

Amanda Carlson
Assistant Laboratory Manager-Helena,MT

Digitally signed by
Amanda B. Carlson
Date: 2016.11.11 10:27:16 -07:00

CLIENT: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Work Order: H16100556

Report Date: 11/11/16

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-001
Client Sample ID: MW-I2

Report Date: 11/11/16
Collection Date: 10/27/16 11:50
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.3	s.u.	H	0.1		A4500-H B	10/28/16 15:31 / SRW
Conductivity @ 25 C	713	umhos/cm		1		A2510 B	10/28/16 15:31 / SRW
INORGANICS							
Chloride	3	mg/L		1		E300.0	11/01/16 10:30 / SRW
Sulfate	30	mg/L		1		E300.0	11/01/16 10:30 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/01/16 18:31 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	11/04/16 18:43 / dck
Arsenic	0.001	mg/L		0.001		E200.8	11/04/16 18:43 / dck
Barium	0.034	mg/L		0.003		E200.8	11/04/16 18:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/07/16 14:42 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/04/16 18:43 / dck
Chromium	ND	mg/L		0.01		E200.8	11/04/16 18:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/04/16 18:43 / dck
Copper	ND	mg/L		0.002		E200.8	11/04/16 18:43 / dck
Iron	ND	mg/L		0.02		E200.8	11/04/16 18:43 / dck
Lead	ND	mg/L		0.0003		E200.8	11/04/16 18:43 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/08/16 12:37 / dck
Nickel	ND	mg/L		0.002		E200.8	11/04/16 18:43 / dck
Selenium	ND	mg/L		0.001		E200.8	11/04/16 18:43 / dck
Silver	ND	mg/L		0.0002		E200.8	11/07/16 14:42 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/04/16 18:43 / dck
Vanadium	ND	mg/L		0.1		E200.8	11/04/16 18:43 / dck
Zinc	ND	mg/L		0.008		E200.8	11/04/16 18:43 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/05/16 04:33 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/05/16 04:33 / eli-b
Benzene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Carbon disulfide	0.13	ug/L	J	1.0		SW8260B	11/05/16 04:33 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-001
Client Sample ID: MW-I2

Report Date: 11/11/16
Collection Date: 10/27/16 11:50
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/05/16 04:33 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/05/16 04:33 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
cis-1,2-Dichloroethene	0.22	ug/L	J	0.50		SW8260B	11/05/16 04:33 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 04:33 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 04:33 / eli-b
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/05/16 04:33 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/05/16 04:33 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/05/16 04:33 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/05/16 04:33 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Styrene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Trichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/05/16 04:33 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/05/16 04:33 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/05/16 04:33 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/05/16 04:33 / eli-b
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	11/05/16 04:33 / eli-b
Surr: Dibromofluoromethane	101	%REC		77-126		SW8260B	11/05/16 04:33 / eli-b
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	11/05/16 04:33 / eli-b
Surr: Toluene-d8	101	%REC		79-122		SW8260B	11/05/16 04:33 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-002
Client Sample ID: MW-II

Report Date: 11/11/16
Collection Date: 10/27/16 12:40
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	10/28/16 15:34 / SRW
Conductivity @ 25 C	659	umhos/cm		1		A2510 B	10/28/16 15:34 / SRW
INORGANICS							
Chloride	2	mg/L		1		E300.0	11/01/16 10:41 / SRW
Sulfate	40	mg/L		1		E300.0	11/01/16 10:41 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/01/16 18:32 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	11/04/16 18:51 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/04/16 18:51 / dck
Barium	0.035	mg/L		0.003		E200.8	11/04/16 18:51 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/07/16 14:44 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/04/16 18:51 / dck
Chromium	ND	mg/L		0.01		E200.8	11/04/16 18:51 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/04/16 18:51 / dck
Copper	ND	mg/L		0.002		E200.8	11/04/16 18:51 / dck
Iron	ND	mg/L		0.02		E200.8	11/04/16 18:51 / dck
Lead	ND	mg/L		0.0003		E200.8	11/04/16 18:51 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/08/16 12:40 / dck
Nickel	ND	mg/L		0.002		E200.8	11/04/16 18:51 / dck
Selenium	ND	mg/L		0.001		E200.8	11/04/16 18:51 / dck
Silver	ND	mg/L		0.0002		E200.8	11/07/16 14:44 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/04/16 18:51 / dck
Vanadium	ND	mg/L		0.1		E200.8	11/04/16 18:51 / dck
Zinc	ND	mg/L		0.008		E200.8	11/04/16 18:51 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/05/16 05:03 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/05/16 05:03 / eli-b
Benzene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-002
Client Sample ID: MW-II

Report Date: 11/11/16
Collection Date: 10/27/16 12:40
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 05:03 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 05:03 / eli-b
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/05/16 05:03 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/05/16 05:03 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/05/16 05:03 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Styrene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Trichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/05/16 05:03 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/05/16 05:03 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/05/16 05:03 / eli-b
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	11/05/16 05:03 / eli-b
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	11/05/16 05:03 / eli-b
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	11/05/16 05:03 / eli-b
Surr: Toluene-d8	102	%REC		79-122		SW8260B	11/05/16 05:03 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-003
Client Sample ID: MW-9r

Report Date: 11/11/16
Collection Date: 10/27/16 14:00
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	10/28/16 15:36 / SRW
Conductivity @ 25 C	935	umhos/cm		1		A2510 B	10/28/16 15:36 / SRW
INORGANICS							
Chloride	10	mg/L		1		E300.0	11/01/16 10:52 / SRW
Sulfate	68	mg/L		1		E300.0	11/01/16 10:52 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.93	mg/L		0.01		E353.2	11/01/16 18:33 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	11/04/16 18:53 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/04/16 18:53 / dck
Barium	0.042	mg/L		0.003		E200.8	11/04/16 18:53 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/07/16 14:50 / dck
Cadmium	0.00011	mg/L		0.00003		E200.8	11/04/16 18:53 / dck
Chromium	ND	mg/L		0.01		E200.8	11/04/16 18:53 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/04/16 18:53 / dck
Copper	ND	mg/L		0.002		E200.8	11/04/16 18:53 / dck
Iron	ND	mg/L		0.02		E200.8	11/04/16 18:53 / dck
Lead	ND	mg/L		0.0003		E200.8	11/04/16 18:53 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/08/16 12:43 / dck
Nickel	0.005	mg/L		0.002		E200.8	11/04/16 18:53 / dck
Selenium	0.001	mg/L		0.001		E200.8	11/07/16 14:50 / dck
Silver	ND	mg/L		0.0002		E200.8	11/07/16 14:50 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/04/16 18:53 / dck
Vanadium	ND	mg/L		0.1		E200.8	11/04/16 18:53 / dck
Zinc	ND	mg/L		0.008		E200.8	11/04/16 18:53 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/05/16 05:32 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/05/16 05:32 / eli-b
Benzene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-003
Client Sample ID: MW-9r

Report Date: 11/11/16
Collection Date: 10/27/16 14:00
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
cis-1,2-Dichloroethene	2.4	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 05:32 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 05:32 / eli-b
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/05/16 05:32 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/05/16 05:32 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/05/16 05:32 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Styrene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Tetrachloroethene	0.36	ug/L	J	0.50		SW8260B	11/05/16 05:32 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Trichloroethene	0.21	ug/L	J	0.50		SW8260B	11/05/16 05:32 / eli-b
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/05/16 05:32 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/05/16 05:32 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/05/16 05:32 / eli-b
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	11/05/16 05:32 / eli-b
Surr: Dibromofluoromethane	102	%REC		77-126		SW8260B	11/05/16 05:32 / eli-b
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	11/05/16 05:32 / eli-b
Surr: Toluene-d8	101	%REC		79-122		SW8260B	11/05/16 05:32 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-004
Client Sample ID: MW-OW (Office Well)

Report Date: 11/11/16
Collection Date: 10/27/16 14:45
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	10/28/16 15:38 / SRW
Conductivity @ 25 C	611	umhos/cm		1		A2510 B	10/28/16 15:38 / SRW
INORGANICS							
Chloride	10	mg/L		1		E300.0	11/01/16 11:03 / SRW
Sulfate	ND	mg/L		1		E300.0	11/01/16 11:03 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/01/16 18:34 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	11/04/16 18:55 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/04/16 18:55 / dck
Barium	0.122	mg/L		0.003		E200.8	11/04/16 18:55 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/07/16 14:52 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/04/16 18:55 / dck
Chromium	ND	mg/L		0.01		E200.8	11/04/16 18:55 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/04/16 18:55 / dck
Copper	ND	mg/L		0.002		E200.8	11/04/16 18:55 / dck
Iron	ND	mg/L		0.02		E200.8	11/04/16 18:55 / dck
Lead	ND	mg/L		0.0003		E200.8	11/04/16 18:55 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/08/16 12:45 / dck
Nickel	ND	mg/L		0.002		E200.8	11/04/16 18:55 / dck
Selenium	ND	mg/L		0.001		E200.8	11/04/16 18:55 / dck
Silver	ND	mg/L		0.0002		E200.8	11/07/16 14:52 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/04/16 18:55 / dck
Vanadium	ND	mg/L		0.1		E200.8	11/04/16 18:55 / dck
Zinc	0.658	mg/L		0.008		E200.8	11/04/16 18:55 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/05/16 06:02 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/05/16 06:02 / eli-b
Benzene	0.82	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/05/16 06:02 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-004
Client Sample ID: MW-OW (Office Well)

Report Date: 11/11/16
Collection Date: 10/27/16 14:45
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/05/16 06:02 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/05/16 06:02 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
cis-1,2-Dichloroethene	12	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 06:02 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 06:02 / eli-b
Ethylbenzene	0.67	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/05/16 06:02 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/05/16 06:02 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/05/16 06:02 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/05/16 06:02 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Styrene	1.5	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Trichloroethene	0.13	ug/L	J	0.50		SW8260B	11/05/16 06:02 / eli-b
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/05/16 06:02 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/05/16 06:02 / eli-b
m+p-Xylenes	0.31	ug/L	J	1.0		SW8260B	11/05/16 06:02 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/05/16 06:02 / eli-b
Xylenes, Total	0.31	ug/L	J	1.0		SW8260B	11/05/16 06:02 / eli-b
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	11/05/16 06:02 / eli-b
Surr: Dibromofluoromethane	102	%REC		77-126		SW8260B	11/05/16 06:02 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	11/05/16 06:02 / eli-b
Surr: Toluene-d8	101	%REC		79-122		SW8260B	11/05/16 06:02 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-005
Client Sample ID: MW-HW (House Well)

Report Date: 11/11/16
Collection Date: 10/27/16 15:15
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	10/28/16 15:41 / SRW
Conductivity @ 25 C	793	umhos/cm		1		A2510 B	10/28/16 15:41 / SRW
INORGANICS							
Chloride	5	mg/L		1		E300.0	11/01/16 11:14 / SRW
Sulfate	29	mg/L		1		E300.0	11/01/16 11:14 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/01/16 18:35 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	11/04/16 18:57 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/04/16 18:57 / dck
Barium	0.063	mg/L		0.003		E200.8	11/04/16 18:57 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/07/16 14:54 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/04/16 18:57 / dck
Chromium	ND	mg/L		0.01		E200.8	11/04/16 18:57 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/04/16 18:57 / dck
Copper	ND	mg/L		0.002		E200.8	11/04/16 18:57 / dck
Iron	ND	mg/L		0.02		E200.8	11/04/16 18:57 / dck
Lead	ND	mg/L		0.0003		E200.8	11/04/16 18:57 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/08/16 12:48 / dck
Nickel	ND	mg/L		0.002		E200.8	11/04/16 18:57 / dck
Selenium	ND	mg/L		0.001		E200.8	11/04/16 18:57 / dck
Silver	ND	mg/L		0.0002		E200.8	11/07/16 14:54 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/04/16 18:57 / dck
Vanadium	ND	mg/L		0.1		E200.8	11/04/16 18:57 / dck
Zinc	0.043	mg/L		0.008		E200.8	11/04/16 18:57 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/05/16 06:31 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/05/16 06:31 / eli-b
Benzene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-005
Client Sample ID: MW-HW (House Well)

Report Date: 11/11/16
Collection Date: 10/27/16 15:15
DateReceived: 10/28/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 06:31 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/05/16 06:31 / eli-b
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/05/16 06:31 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/05/16 06:31 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/05/16 06:31 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Styrene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Trichloroethene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/05/16 06:31 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/05/16 06:31 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/05/16 06:31 / eli-b
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	11/05/16 06:31 / eli-b
Surr: Dibromofluoromethane	101	%REC		77-126		SW8260B	11/05/16 06:31 / eli-b
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	11/05/16 06:31 / eli-b
Surr: Toluene-d8	101	%REC		79-122		SW8260B	11/05/16 06:31 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-006
Client Sample ID: TB 5927

Report Date: 11/11/16
Collection Date: 10/27/16 11:50
DateReceived: 10/28/16
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/07/16 19:20 / eli-b
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/07/16 19:20 / eli-b
Benzene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Bromoform	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Bromomethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Chloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Chloroform	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Chloromethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Dibromomethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/07/16 19:20 / eli-b
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/07/16 19:20 / eli-b
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
2-Hexanone	ND	ug/L		20		SW8260B	11/07/16 19:20 / eli-b
Iodomethane	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/07/16 19:20 / eli-b
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/07/16 19:20 / eli-b
Methylene chloride	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Styrene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Toluene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Trichloroethene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16100556-006
Client Sample ID: TB 5927

Report Date: 11/11/16
Collection Date: 10/27/16 11:50
DateReceived: 10/28/16
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/07/16 19:20 / eli-b
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/07/16 19:20 / eli-b
o-Xylene	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/07/16 19:20 / eli-b
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	11/07/16 19:20 / eli-b
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	11/07/16 19:20 / eli-b
Surr: p-Bromofluorobenzene	107	%REC		76-127		SW8260B	11/07/16 19:20 / eli-b
Surr: Toluene-d8	101	%REC		79-122		SW8260B	11/07/16 19:20 / eli-b

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-H_161028A	
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							10/28/16 09:49	
Conductivity @ 25 C		1430	umhos/cm	1.0	101	90	110			
Method: A2510 B									Batch: R119892	
Lab ID: SC 150		Initial Calibration Verification Standard				Run: PHSC_101-H_161028A			10/28/16 08:50	
Conductivity @ 25 C		156	umhos/cm	1.0	104	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard				Run: PHSC_101-H_161028A			10/28/16 08:53	
Conductivity @ 25 C		4920	umhos/cm	1.0	98	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard				Run: PHSC_101-H_161028A			10/28/16 08:55	
Conductivity @ 25 C		19800	umhos/cm	1.0	99	90	110			
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_161028A			10/28/16 08:57	
Conductivity @ 25 C		1010	umhos/cm	1.0	101	90	110			
Lab ID: H16100513-011ADUP		Sample Duplicate				Run: PHSC_101-H_161028A			10/28/16 09:41	
Conductivity @ 25 C		2000	umhos/cm	1.0				0.2	10	
Lab ID: H16100557-004ADUP		Sample Duplicate				Run: PHSC_101-H_161028A			10/28/16 15:53	
Conductivity @ 25 C		19200	umhos/cm	1.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-H_161028A	
Lab ID: pH 7	Initial Calibration Verification Standard								10/28/16 08:47	
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: CCV - pH 7	Continuing Calibration Verification Standard								10/28/16 09:46	
pH		7.0	s.u.	0.1	100	98	102			
Method: A4500-H B									Batch: R119892	
Lab ID: H16100557-004ADUP	Sample Duplicate					Run: PHSC_101-H_161028A			10/28/16 15:53	
pH		7.4	s.u.	0.1				0.1	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS205-H_161104B	
Lab ID: ICV	14	Initial Calibration Verification Standard							11/04/16 11:51	
Antimony		0.0588	mg/L	0.050	98	90	110			
Arsenic		0.0589	mg/L	0.0050	98	90	110			
Barium		0.0578	mg/L	0.10	96	90	110			
Cadmium		0.0291	mg/L	0.0010	97	90	110			
Chromium		0.0584	mg/L	0.010	97	90	110			
Cobalt		0.0589	mg/L	0.010	98	90	110			
Copper		0.0594	mg/L	0.010	99	90	110			
Iron		0.299	mg/L	0.020	100	90	110			
Lead		0.0574	mg/L	0.010	96	90	110			
Nickel		0.0596	mg/L	0.010	99	90	110			
Selenium		0.0581	mg/L	0.0050	97	90	110			
Thallium		0.0570	mg/L	0.10	95	90	110			
Vanadium		0.0578	mg/L	0.10	96	90	110			
Zinc		0.0598	mg/L	0.010	100	90	110			
Lab ID: ICSA	14	Interference Check Sample A							11/04/16 11:53	
Antimony		3.43E-05	mg/L	0.050						
Arsenic		2.33E-05	mg/L	0.0050						
Barium		0.000123	mg/L	0.10						
Cadmium		1.76E-05	mg/L	0.0010						
Chromium		0.00130	mg/L	0.010						
Cobalt		-2.16E-05	mg/L	0.010						
Copper		0.000248	mg/L	0.010						
Iron		112	mg/L	0.020	112	70	130			
Lead		0.000228	mg/L	0.010						
Nickel		-0.000117	mg/L	0.010						
Selenium		7.66E-05	mg/L	0.0050						
Thallium		4.58E-06	mg/L	0.10						
Vanadium		-0.000149	mg/L	0.10						
Zinc		0.000519	mg/L	0.010						
Method: E200.8									Batch: R120140	
Lab ID: LRB	14	Method Blank				Run: ICPMS205-H_161104B			11/04/16 12:15	
Antimony		ND	mg/L	1E-05						
Arsenic		ND	mg/L	1E-05						
Barium		ND	mg/L	2E-05						
Cadmium		ND	mg/L	5E-06						
Chromium		ND	mg/L	2E-05						
Cobalt		ND	mg/L	9E-06						
Copper		ND	mg/L	9E-05						
Iron		ND	mg/L	0.0004						
Lead		ND	mg/L	1E-05						
Nickel		ND	mg/L	2E-05						
Selenium		ND	mg/L	2E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R120140
Lab ID: LRB	14	Method Blank				Run: ICPMS205-H_161104B				11/04/16 12:15
Thallium		ND	mg/L	1E-05						
Vanadium		ND	mg/L	6E-05						
Zinc		0.0003	mg/L	8E-05						
Lab ID: LFB	14	Laboratory Fortified Blank				Run: ICPMS205-H_161104B				11/04/16 12:17
Antimony		0.0498	mg/L	0.050	100	85	115			
Arsenic		0.0515	mg/L	0.0050	103	85	115			
Barium		0.0490	mg/L	0.10	98	85	115			
Cadmium		0.0490	mg/L	0.0010	98	85	115			
Chromium		0.0498	mg/L	0.010	100	85	115			
Cobalt		0.0505	mg/L	0.010	101	85	115			
Copper		0.0498	mg/L	0.010	100	85	115			
Iron		0.149	mg/L	0.020	99	85	115			
Lead		0.0494	mg/L	0.010	99	85	115			
Nickel		0.0502	mg/L	0.010	100	85	115			
Selenium		0.0498	mg/L	0.0050	100	85	115			
Thallium		0.0490	mg/L	0.10	98	85	115			
Vanadium		0.0497	mg/L	0.10	99	85	115			
Zinc		0.0523	mg/L	0.010	104	85	115			
Lab ID: H16100556-001BMS	14	Sample Matrix Spike				Run: ICPMS205-H_161104B				11/04/16 18:45
Antimony		0.0498	mg/L	0.0010	100	70	130			
Arsenic		0.0494	mg/L	0.0010	97	70	130			
Barium		0.0817	mg/L	0.050	96	70	130			
Cadmium		0.0470	mg/L	0.0010	94	70	130			
Chromium		0.0476	mg/L	0.0050	95	70	130			
Cobalt		0.0475	mg/L	0.0050	94	70	130			
Copper		0.0459	mg/L	0.0050	92	70	130			
Iron		0.160	mg/L	0.020	95	70	130			
Lead		0.0477	mg/L	0.0010	95	70	130			
Nickel		0.0475	mg/L	0.0050	93	70	130			
Selenium		0.0520	mg/L	0.0010	104	70	130			
Thallium		0.0478	mg/L	0.00050	96	70	130			
Vanadium		0.0485	mg/L	0.010	97	70	130			
Zinc		0.0476	mg/L	0.010	93	70	130			
Lab ID: H16100556-001BMSD	14	Sample Matrix Spike Duplicate				Run: ICPMS205-H_161104B				11/04/16 18:47
Antimony		0.0501	mg/L	0.0010	100	70	130	0.7	20	
Arsenic		0.0516	mg/L	0.0010	101	70	130	4.2	20	
Barium		0.0830	mg/L	0.050	99	70	130	1.5	20	
Cadmium		0.0475	mg/L	0.0010	95	70	130	1.1	20	
Chromium		0.0483	mg/L	0.0050	97	70	130	1.3	20	
Cobalt		0.0485	mg/L	0.0050	96	70	130	2.1	20	
Copper		0.0464	mg/L	0.0050	93	70	130	1.2	20	
Iron		0.162	mg/L	0.020	96	70	130	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R120140	
Lab ID: H16100556-001BMSD	14	Sample Matrix Spike Duplicate				Run: ICPMS205-H_161104B			11/04/16 18:47	
Lead		0.0491	mg/L	0.0010	98	70	130	2.9	20	
Nickel		0.0481	mg/L	0.0050	94	70	130	1.3	20	
Selenium		0.0546	mg/L	0.0010	109	70	130	4.8	20	
Thallium		0.0492	mg/L	0.00050	98	70	130	2.9	20	
Vanadium		0.0494	mg/L	0.010	99	70	130	1.9	20	
Zinc		0.0490	mg/L	0.010	96	70	130	2.9	20	
Method: E200.8									Analytical Run: ICPMS205-H_161107A	
Lab ID: ICV	3	Initial Calibration Verification Standard							11/07/16 12:27	
Beryllium		0.0290	mg/L	0.0010	97	90	110			
Selenium		0.0577	mg/L	0.0050	96	90	110			
Silver		0.0291	mg/L	0.0050	97	90	110			
Lab ID: ICSA	3	Interference Check Sample A							11/07/16 12:29	
Beryllium		7.55E-06	mg/L	0.0010						
Selenium		4.46E-05	mg/L	0.0050						
Silver		6.87E-05	mg/L	0.0050						
Method: E200.8									Batch: R120234	
Lab ID: LRB	3	Method Blank				Run: ICPMS205-H_161107A			11/07/16 14:02	
Beryllium		ND	mg/L	0.0002						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	3E-06						
Lab ID: LFB	3	Laboratory Fortified Blank				Run: ICPMS205-H_161107A			11/07/16 14:04	
Beryllium		0.0474	mg/L	0.0010	95	85	115			
Selenium		0.0493	mg/L	0.0050	99	85	115			
Silver		0.0190	mg/L	0.0050	95	85	115			
Lab ID: H16100553-001BMS	3	Sample Matrix Spike				Run: ICPMS205-H_161107A			11/07/16 14:36	
Beryllium		0.0896	mg/L	0.0010	90	70	130			
Selenium		0.124	mg/L	0.0010	113	70	130			
Silver		0.0314	mg/L	0.0010	78	70	130			
Lab ID: H16100553-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICPMS205-H_161107A			11/07/16 14:38	
Beryllium		0.0884	mg/L	0.0010	88	70	130	1.3	20	
Selenium		0.119	mg/L	0.0010	108	70	130	4.0	20	
Silver		0.0318	mg/L	0.0010	79	70	130	1.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1									Analytical Run: HGCV202-H_161108A	
Lab ID: ICV		Initial Calibration Verification Standard							11/08/16 11:33	
Mercury		0.000204	mg/L	0.00010	102	90	110			
Lab ID: CCV1		Continuing Calibration Verification Standard							11/08/16 11:35	
Mercury		0.000193	mg/L	0.00010	97	95	105			
Method: E245.1									Batch: 35099	
Lab ID: MB-35099		Method Blank				Run: HGCV202-H_161108A			11/08/16 12:25	
Mercury		ND	mg/L	1E-06						
Lab ID: LCS-35099		Laboratory Control Sample				Run: HGCV202-H_161108A			11/08/16 12:28	
Mercury		0.00015	mg/L	0.00010	101	90	110			
Lab ID: H16100557-001CMS		Sample Matrix Spike				Run: HGCV202-H_161108A			11/08/16 12:54	
Mercury		0.000108	mg/L	0.00010	71	70	130			
Lab ID: H16100557-001CMSD		Sample Matrix Spike Duplicate				Run: HGCV202-H_161108A			11/08/16 12:56	
Mercury		0.000113	mg/L	0.00010	74	70	130	4.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_161101A	
Lab ID: ICV	2	Initial Calibration Verification Standard							11/01/16 08:50	
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		394	mg/L	1.0	98	90	110			
Lab ID: CCV110116-1	2	Continuing Calibration Verification Standard							11/01/16 09:12	
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		396	mg/L	1.0	99	90	110			
Method: E300.0									Batch: R120045	
Lab ID: ICB	2	Method Blank				Run: IC102-H_161101A			11/01/16 08:38	
Chloride		ND	mg/L	0.01						
Sulfate		ND	mg/L	0.02						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC102-H_161101A			11/01/16 09:01	
Chloride		48.2	mg/L	1.0	96	90	110			
Sulfate		192	mg/L	1.0	96	90	110			
Lab ID: H16100562-001AMS	2	Sample Matrix Spike				Run: IC102-H_161101A			11/01/16 11:36	
Chloride		55.3	mg/L	1.0	103	90	110			
Sulfate		228	mg/L	1.0	102	90	110			
Lab ID: H16100562-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_161101A			11/01/16 11:47	
Chloride		54.9	mg/L	1.0	102	90	110	0.8	20	
Sulfate		229	mg/L	1.0	102	90	110	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-HE_161101A	
Lab ID: ICV	Initial Calibration Verification Standard								11/01/16 17:31	
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.010	101	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								11/01/16 18:23	
Nitrogen, Nitrate+Nitrite as N		0.509	mg/L	0.010	102	90	110			
Method: E353.2									Batch: R120019	
Lab ID: MBLK	Method Blank					Run: FIA203-HE_161101A			11/01/16 17:32	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.001						
Lab ID: LFB	Laboratory Fortified Blank					Run: FIA203-HE_161101A			11/01/16 17:33	
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	102	90	110			
Lab ID: H16100550-003CMS	Sample Matrix Spike					Run: FIA203-HE_161101A			11/01/16 18:27	
Nitrogen, Nitrate+Nitrite as N		1.09	mg/L	0.011	107	90	110			
Lab ID: H16100550-003CMSD	Sample Matrix Spike Duplicate					Run: FIA203-HE_161101A			11/01/16 18:28	
Nitrogen, Nitrate+Nitrite as N		1.10	mg/L	0.011	108	90	110	1.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: B_R269973	
Lab ID: CCVA110416	54	Continuing Calibration Verification Standard							11/05/16 00:05	
trans-1,4-Dichloro-2-butene		3.95	ug/L	1.0	79	70	130			
Acetone		57.2	ug/L	10	114	70	130			
Acrylonitrile		53.6	ug/L	10	107	70	130			
Benzene		5.12	ug/L	0.50	102	70	130			
Bromochloromethane		5.44	ug/L	0.50	109	70	130			
Bromodichloromethane		5.20	ug/L	0.50	104	70	130			
Bromoform		4.56	ug/L	0.50	91	70	130			
Bromomethane		4.80	ug/L	0.50	96	70	130			
Carbon disulfide		5.28	ug/L	0.50	106	70	130			
Carbon tetrachloride		5.36	ug/L	0.50	107	70	130			
Chlorobenzene		5.32	ug/L	0.50	106	70	130			
Chlorodibromomethane		5.12	ug/L	0.50	102	70	130			
Chloroethane		5.04	ug/L	0.50	101	70	130			
Chloroform		5.16	ug/L	0.50	103	80	120			
Chloromethane		5.80	ug/L	0.50	116	70	130			
1,2-Dibromo-3-chloropropane		4.24	ug/L	1.0	85	70	130			
1,2-Dibromoethane		5.24	ug/L	0.50	105	70	130			
Dibromomethane		5.16	ug/L	0.50	103	70	130			
1,2-Dichlorobenzene		5.32	ug/L	0.50	106	70	130			
1,4-Dichlorobenzene		5.28	ug/L	0.50	106	70	130			
Dichlorodifluoromethane		6.00	ug/L	0.50	120	70	130			
1,1-Dichloroethane		5.08	ug/L	0.50	102	70	130			
1,2-Dichloroethane		5.08	ug/L	0.50	102	70	130			
1,1-Dichloroethene		4.76	ug/L	0.50	95	80	120			
cis-1,2-Dichloroethene		5.20	ug/L	0.50	104	70	130			
trans-1,2-Dichloroethene		5.48	ug/L	0.50	110	70	130			
1,2-Dichloropropane		5.32	ug/L	0.50	106	80	120			
cis-1,3-Dichloropropene		5.00	ug/L	0.50	100	70	130			
trans-1,3-Dichloropropene		4.72	ug/L	0.50	94	70	130			
Ethylbenzene		5.28	ug/L	0.50	106	80	120			
2-Hexanone		53.2	ug/L	10	106	70	130			
Iodomethane		2.86	ug/L	1.0	57	70	130			S
Methyl ethyl ketone		51.6	ug/L	10	103	70	130			
Methyl isobutyl ketone		49.2	ug/L	10	98	70	130			
Methylene chloride		5.04	ug/L	0.50	101	70	130			
Styrene		5.32	ug/L	0.50	106	70	130			
1,1,1,2-Tetrachloroethane		5.28	ug/L	0.50	106	70	130			
1,1,2,2-Tetrachloroethane		4.68	ug/L	0.50	94	70	130			
Tetrachloroethene		5.20	ug/L	0.50	104	70	130			
Toluene		5.24	ug/L	0.50	105	80	120			
1,1,1-Trichloroethane		5.28	ug/L	0.50	106	70	130			
1,1,2-Trichloroethane		5.16	ug/L	0.50	103	70	130			
Trichloroethene		5.24	ug/L	0.50	105	70	130			
Trichlorofluoromethane		4.96	ug/L	0.50	99	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: B_R269973	
Lab ID: CCVA110416	54	Continuing Calibration Verification Standard							11/05/16 00:05	
1,2,3-Trichloropropane		5.04	ug/L	0.50	101	70	130			
Vinyl acetate		4.20	ug/L	1.0	84	70	130			
Vinyl chloride		5.28	ug/L	0.50	106	80	120			
m+p-Xylenes		10.8	ug/L	0.50	108	70	130			
o-Xylene		5.40	ug/L	0.50	108	70	130			
Xylenes, Total		16.2	ug/L	0.50	108	70	130			
Surr: 1,2-Dichloroethane-d4				0.50	93	70	130			
Surr: Dibromofluoromethane				0.50	99	77	126			
Surr: p-Bromofluorobenzene				0.50	100	76	127			
Surr: Toluene-d8				0.50	101	79	122			
Method: SW8260B									Batch: B_R269973	
Lab ID: LCS110416	54	Laboratory Control Sample				Run: SUB-B269973			11/05/16 00:35	
trans-1,4-Dichloro-2-butene		3.36	ug/L	1.0	67	50	142			
Acetone		47.2	ug/L	10	94	62	130			
Acrylonitrile		52.4	ug/L	10	105	60	130			
Benzene		5.24	ug/L	0.50	105	71	133			
Bromochloromethane		5.24	ug/L	0.50	105	68	131			
Bromodichloromethane		5.56	ug/L	0.50	111	67	138			
Bromoform		4.80	ug/L	0.50	96	64	136			
Bromomethane		5.12	ug/L	0.50	102	60	138			
Carbon disulfide		4.88	ug/L	0.50	98	46	145			
Carbon tetrachloride		5.20	ug/L	0.50	104	61	144			
Chlorobenzene		5.32	ug/L	0.50	106	78	136			
Chlorodibromomethane		5.40	ug/L	0.50	108	72	136			
Chloroethane		5.04	ug/L	0.50	101	64	136			
Chloroform		5.20	ug/L	0.50	104	69	133			
Chloromethane		5.68	ug/L	0.50	114	63	149			
1,2-Dibromo-3-chloropropane		4.16	ug/L	1.0	83	63	125			
1,2-Dibromoethane		5.20	ug/L	0.50	104	75	131			
Dibromomethane		5.36	ug/L	0.50	107	72	133			
1,2-Dichlorobenzene		5.28	ug/L	0.50	106	78	129			
1,4-Dichlorobenzene		5.32	ug/L	0.50	106	78	131			
Dichlorodifluoromethane		5.76	ug/L	0.50	115	55	141			
1,1-Dichloroethane		4.84	ug/L	0.50	97	72	130			
1,2-Dichloroethane		4.88	ug/L	0.50	98	57	146			
1,1-Dichloroethene		4.96	ug/L	0.50	99	66	142			
cis-1,2-Dichloroethene		5.60	ug/L	0.50	112	74	133			
trans-1,2-Dichloroethene		6.20	ug/L	0.50	124	76	138			
1,2-Dichloropropane		5.12	ug/L	0.50	102	72	135			
cis-1,3-Dichloropropene		4.68	ug/L	0.50	94	75	132			
trans-1,3-Dichloropropene		4.88	ug/L	0.50	98	77	145			
Ethylbenzene		5.24	ug/L	0.50	105	78	131			
2-Hexanone		52.0	ug/L	10	104	72	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R269973
Lab ID: LCS110416	54	Laboratory Control Sample				Run: SUB-B269973				11/05/16 00:35
Iodomethane		3.30	ug/L	1.0	66	66	132			
Methyl ethyl ketone		49.6	ug/L	10	99	55	145			
Methyl isobutyl ketone		47.6	ug/L	10	95	73	129			
Methylene chloride		5.08	ug/L	0.50	102	73	126			
Styrene		5.32	ug/L	0.50	106	76	134			
1,1,1,2-Tetrachloroethane		5.20	ug/L	0.50	104	75	135			
1,1,2,2-Tetrachloroethane		4.44	ug/L	0.50	89	72	132			
Tetrachloroethene		5.28	ug/L	0.50	106	78	137			
Toluene		5.32	ug/L	0.50	106	78	134			
1,1,1-Trichloroethane		5.16	ug/L	0.50	103	64	141			
1,1,2-Trichloroethane		5.08	ug/L	0.50	102	72	133			
Trichloroethene		5.08	ug/L	0.50	102	75	138			
Trichlorofluoromethane		4.96	ug/L	0.50	99	58	139			
1,2,3-Trichloropropane		4.72	ug/L	0.50	94	67	133			
Vinyl acetate		4.12	ug/L	1.0	82	31	124			
Vinyl chloride		5.44	ug/L	0.50	109	66	140			
m+p-Xylenes		10.6	ug/L	0.50	106	78	133			
o-Xylene		5.36	ug/L	0.50	107	79	136			
Xylenes, Total		16.0	ug/L	0.50	107	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	104	70	130			
Surr: Dibromofluoromethane				0.50	100	77	126			
Surr: p-Bromofluorobenzene				0.50	98	76	127			
Surr: Toluene-d8				0.50	101	79	122			
Lab ID: BLK110416	54	Method Blank				Run: SUB-B269973				11/05/16 01:34
trans-1,4-Dichloro-2-butene		ND	ug/L	1.0						
Acetone		ND	ug/L	10						
Acrylonitrile		ND	ug/L	3.0						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	1.0						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 11/11/16
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: B_R269973	
Lab ID: BLK110416	54	Method Blank				Run: SUB-B269973			11/05/16 01:34	
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.30						
trans-1,3-Dichloropropene		ND	ug/L	0.30						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	10						
Iodomethane		ND	ug/L	1.0						
Methyl ethyl ketone		ND	ug/L	10						
Methyl isobutyl ketone		ND	ug/L	10						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.40						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	1.0						
Vinyl chloride		ND	ug/L	0.40						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Xylenes, Total		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				0.50	101	70	130			
Surr: Dibromofluoromethane				0.50	103	77	126			
Surr: p-Bromofluorobenzene				0.50	109	76	127			
Surr: Toluene-d8				0.50	101	79	122			
Lab ID: B16110071-001GMS	54	Sample Matrix Spike				Run: SUB-B269973			11/05/16 09:58	
trans-1,4-Dichloro-2-butene		3.93	ug/L	1.0	79	50	142			
Acetone		58.8	ug/L	10	118	62	130			
Acrylonitrile		48.8	ug/L	10	98	60	130			
Benzene		5.60	ug/L	0.50	112	71	133			
Bromochloromethane		5.44	ug/L	0.50	109	68	131			
Bromodichloromethane		5.92	ug/L	0.50	118	67	138			
Bromoform		5.08	ug/L	0.50	102	64	136			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: B_R269973	
Lab ID: B16110071-001GMS	54	Sample Matrix Spike				Run: SUB-B269973			11/05/16 09:58	
Bromomethane		4.36	ug/L	0.50	87	60	138			
Carbon disulfide		4.76	ug/L	0.50	95	46	145			
Carbon tetrachloride		5.96	ug/L	0.50	119	61	144			
Chlorobenzene		5.72	ug/L	0.50	114	78	136			
Chlorodibromomethane		5.64	ug/L	0.50	113	72	136			
Chloroethane		5.60	ug/L	0.50	112	64	136			
Chloroform		5.72	ug/L	0.50	114	69	133			
Chloromethane		5.92	ug/L	0.50	118	63	149			
1,2-Dibromo-3-chloropropane		4.16	ug/L	1.0	83	63	125			
1,2-Dibromoethane		5.48	ug/L	0.50	110	75	131			
Dibromomethane		5.44	ug/L	0.50	109	72	133			
1,2-Dichlorobenzene		5.68	ug/L	0.50	114	78	129			
1,4-Dichlorobenzene		5.56	ug/L	0.50	111	78	131			
Dichlorodifluoromethane		6.20	ug/L	0.50	124	55	141			
1,1-Dichloroethane		5.80	ug/L	0.50	116	72	130			
1,2-Dichloroethane		5.32	ug/L	0.50	106	57	146			
1,1-Dichloroethene		5.80	ug/L	0.50	116	66	142			
cis-1,2-Dichloroethene		5.88	ug/L	0.50	118	74	133			
trans-1,2-Dichloroethene		5.48	ug/L	0.50	110	76	138			
1,2-Dichloropropane		5.52	ug/L	0.50	110	72	135			
cis-1,3-Dichloropropene		5.00	ug/L	0.50	100	75	132			
trans-1,3-Dichloropropene		5.28	ug/L	0.50	106	77	145			
Ethylbenzene		5.60	ug/L	0.50	112	78	131			
2-Hexanone		55.6	ug/L	10	111	72	131			
Iodomethane		2.45	ug/L	1.0	49	66	132			S
Methyl ethyl ketone		50.0	ug/L	10	100	55	145			
Methyl isobutyl ketone		52.0	ug/L	10	104	73	129			
Methylene chloride		6.08	ug/L	0.50	122	73	126			
Styrene		5.60	ug/L	0.50	112	76	134			
1,1,1,2-Tetrachloroethane		5.36	ug/L	0.50	107	75	135			
1,1,2,2-Tetrachloroethane		4.92	ug/L	0.50	98	72	132			
Tetrachloroethene		5.40	ug/L	0.50	108	78	137			
Toluene		5.64	ug/L	0.50	113	78	134			
1,1,1-Trichloroethane		5.40	ug/L	0.50	108	64	141			
1,1,2-Trichloroethane		5.40	ug/L	0.50	108	72	133			
Trichloroethene		5.36	ug/L	0.50	107	75	138			
Trichlorofluoromethane		5.72	ug/L	0.50	114	58	139			
1,2,3-Trichloropropane		5.24	ug/L	0.50	105	67	133			
Vinyl acetate		5.16	ug/L	1.0	103	31	124			
Vinyl chloride		5.92	ug/L	0.50	118	66	140			
m+p-Xylenes		11.2	ug/L	0.50	112	78	133			
o-Xylene		5.64	ug/L	0.50	113	79	136			
Xylenes, Total		16.8	ug/L	0.50	112	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	108	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: B_R269973	
Lab ID: B16110071-001GMS	54	Sample Matrix Spike				Run: SUB-B269973			11/05/16 09:58	
Surr: Dibromofluoromethane				0.50	100	77	126			
Surr: p-Bromofluorobenzene				0.50	102	76	127			
Surr: Toluene-d8				0.50	100	79	122			
Lab ID: B16110071-001GMSD	54	Sample Matrix Spike Duplicate				Run: SUB-B269973			11/05/16 10:27	
trans-1,4-Dichloro-2-butene		3.87	ug/L	1.0	77	50	142	1.5	20	
Acetone		41.6	ug/L	10	83	62	130	34	20	R
Acrylonitrile		47.2	ug/L	10	94	60	130	3.3	20	
Benzene		5.20	ug/L	0.50	104	71	133	7.4	20	
Bromochloromethane		5.44	ug/L	0.50	109	68	131	0.0	20	
Bromodichloromethane		5.60	ug/L	0.50	112	67	138	5.6	20	
Bromoform		4.76	ug/L	0.50	95	64	136	6.5	20	
Bromomethane		4.48	ug/L	0.50	90	60	138	2.7	20	
Carbon disulfide		4.76	ug/L	0.50	95	46	145	0.0	20	
Carbon tetrachloride		5.48	ug/L	0.50	110	61	144	8.4	20	
Chlorobenzene		5.32	ug/L	0.50	106	78	136	7.2	20	
Chlorodibromomethane		5.24	ug/L	0.50	105	72	136	7.4	20	
Chloroethane		5.44	ug/L	0.50	109	64	136	2.9	20	
Chloroform		5.28	ug/L	0.50	106	69	133	8.0	20	
Chloromethane		5.08	ug/L	0.50	102	63	149	15	20	
1,2-Dibromo-3-chloropropane		4.48	ug/L	1.0	90	63	125	7.4	20	
1,2-Dibromoethane		5.20	ug/L	0.50	104	75	131	5.2	20	
Dibromomethane		4.88	ug/L	0.50	98	72	133	11	20	
1,2-Dichlorobenzene		5.44	ug/L	0.50	109	78	129	4.3	20	
1,4-Dichlorobenzene		5.40	ug/L	0.50	108	78	131	2.9	20	
Dichlorodifluoromethane		5.88	ug/L	0.50	118	55	141	5.3	20	
1,1-Dichloroethane		5.36	ug/L	0.50	107	72	130	7.9	20	
1,2-Dichloroethane		4.68	ug/L	0.50	94	57	146	13	20	
1,1-Dichloroethene		5.24	ug/L	0.50	105	66	142	10	20	
cis-1,2-Dichloroethene		5.48	ug/L	0.50	110	74	133	7.0	20	
trans-1,2-Dichloroethene		5.08	ug/L	0.50	102	76	138	7.6	20	
1,2-Dichloropropane		5.20	ug/L	0.50	104	72	135	6.0	20	
cis-1,3-Dichloropropene		4.72	ug/L	0.50	94	75	132	5.8	20	
trans-1,3-Dichloropropene		5.08	ug/L	0.50	102	77	145	3.9	20	
Ethylbenzene		5.20	ug/L	0.50	104	78	131	7.4	20	
2-Hexanone		56.0	ug/L	10	112	72	131	0.7	20	
Iodomethane		2.94	ug/L	1.0	59	66	132	18	20	S
Methyl ethyl ketone		46.8	ug/L	10	94	55	145	6.6	20	
Methyl isobutyl ketone		50.4	ug/L	10	101	73	129	3.1	20	
Methylene chloride		5.36	ug/L	0.50	107	73	126	13	20	
Styrene		5.24	ug/L	0.50	105	76	134	6.6	20	
1,1,1,2-Tetrachloroethane		5.04	ug/L	0.50	101	75	135	6.2	20	
1,1,2,2-Tetrachloroethane		4.72	ug/L	0.50	94	72	132	4.1	20	
Tetrachloroethene		5.04	ug/L	0.50	101	78	137	6.9	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: B_R269973	
Lab ID: B16110071-001GMSD	54	Sample Matrix Spike Duplicate				Run: SUB-B269973			11/05/16 10:27	
Toluene		5.24	ug/L	0.50	105	78	134	7.4	20	
1,1,1-Trichloroethane		5.20	ug/L	0.50	104	64	141	3.8	20	
1,1,2-Trichloroethane		5.16	ug/L	0.50	103	72	133	4.5	20	
Trichloroethene		5.08	ug/L	0.50	102	75	138	5.4	20	
Trichlorofluoromethane		5.24	ug/L	0.50	105	58	139	8.8	20	
1,2,3-Trichloropropane		4.96	ug/L	0.50	99	67	133	5.5	20	
Vinyl acetate		4.36	ug/L	1.0	87	31	124	17	20	
Vinyl chloride		5.52	ug/L	0.50	110	66	140	7.0	20	
m+p-Xylenes		10.4	ug/L	0.50	104	78	133	7.0	20	
o-Xylene		5.28	ug/L	0.50	106	79	136	6.6	20	
Xylenes, Total		15.7	ug/L	0.50	105	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	106	70	130			
Surr: Dibromofluoromethane				0.50	106	77	126			
Surr: p-Bromofluorobenzene				0.50	102	76	127			
Surr: Toluene-d8				0.50	100	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 11/11/16
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: B_R270026	
Lab ID: CCV110716	54	Continuing Calibration Verification Standard							11/07/16 10:13	
trans-1,4-Dichloro-2-butene		4.64	ug/L	1.0	93	70	130			
Acetone		42.0	ug/L	10	84	70	130			
Acrylonitrile		43.2	ug/L	10	86	70	130			
Benzene		5.12	ug/L	0.50	102	70	130			
Bromochloromethane		5.16	ug/L	0.50	103	70	130			
Bromodichloromethane		5.16	ug/L	0.50	103	70	130			
Bromoform		4.96	ug/L	0.50	99	70	130			
Bromomethane		4.16	ug/L	0.50	83	70	130			
Carbon disulfide		5.60	ug/L	0.50	112	70	130			
Carbon tetrachloride		5.32	ug/L	0.50	106	70	130			
Chlorobenzene		5.36	ug/L	0.50	107	70	130			
Chlorodibromomethane		5.12	ug/L	0.50	102	70	130			
Chloroethane		5.04	ug/L	0.50	101	70	130			
Chloroform		5.08	ug/L	0.50	102	80	120			
Chloromethane		5.48	ug/L	0.50	110	70	130			
1,2-Dibromo-3-chloropropane		4.48	ug/L	1.0	90	70	130			
1,2-Dibromoethane		5.16	ug/L	0.50	103	70	130			
Dibromomethane		5.16	ug/L	0.50	103	70	130			
1,2-Dichlorobenzene		5.44	ug/L	0.50	109	70	130			
1,4-Dichlorobenzene		5.44	ug/L	0.50	109	70	130			
Dichlorodifluoromethane		6.20	ug/L	0.50	124	70	130			
1,1-Dichloroethane		5.12	ug/L	0.50	102	70	130			
1,2-Dichloroethane		4.80	ug/L	0.50	96	70	130			
1,1-Dichloroethene		4.84	ug/L	0.50	97	80	120			
cis-1,2-Dichloroethene		5.20	ug/L	0.50	104	70	130			
trans-1,2-Dichloroethene		5.36	ug/L	0.50	107	70	130			
1,2-Dichloropropane		5.20	ug/L	0.50	104	80	120			
cis-1,3-Dichloropropene		5.36	ug/L	0.50	107	70	130			
trans-1,3-Dichloropropene		5.04	ug/L	0.50	101	70	130			
Ethylbenzene		5.36	ug/L	0.50	107	80	120			
2-Hexanone		50.4	ug/L	10	101	70	130			
Iodomethane		4.28	ug/L	1.0	86	70	130			
Methyl ethyl ketone		49.2	ug/L	10	98	70	130			
Methyl isobutyl ketone		47.6	ug/L	10	95	70	130			
Methylene chloride		4.52	ug/L	0.50	90	70	130			
Styrene		5.28	ug/L	0.50	106	70	130			
1,1,1,2-Tetrachloroethane		5.12	ug/L	0.50	102	70	130			
1,1,2,2-Tetrachloroethane		4.52	ug/L	0.50	90	70	130			
Tetrachloroethene		5.40	ug/L	0.50	108	70	130			
Toluene		5.36	ug/L	0.50	107	80	120			
1,1,1-Trichloroethane		4.92	ug/L	0.50	98	70	130			
1,1,2-Trichloroethane		5.20	ug/L	0.50	104	70	130			
Trichloroethene		5.40	ug/L	0.50	108	70	130			
Trichlorofluoromethane		4.92	ug/L	0.50	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: B_R270026	
Lab ID: CCV110716	54	Continuing Calibration Verification Standard							11/07/16 10:13	
1,2,3-Trichloropropane		5.20	ug/L	0.50	104	70	130			
Vinyl acetate		4.96	ug/L	1.0	99	70	130			
Vinyl chloride		5.60	ug/L	0.50	112	80	120			
m+p-Xylenes		10.9	ug/L	0.50	109	70	130			
o-Xylene		5.40	ug/L	0.50	108	70	130			
Xylenes, Total		16.3	ug/L	0.50	109	70	130			
Surr: 1,2-Dichloroethane-d4				0.50	95	70	130			
Surr: Dibromofluoromethane				0.50	104	77	126			
Surr: p-Bromofluorobenzene				0.50	99	76	127			
Surr: Toluene-d8				0.50	102	79	122			
Method: SW8260B									Batch: B_R270026	
Lab ID: LCS110716	54	Laboratory Control Sample				Run: SUB-B270026			11/07/16 10:55	
trans-1,4-Dichloro-2-butene		3.96	ug/L	1.0	79	50	142			
Acetone		45.2	ug/L	10	90	62	130			
Acrylonitrile		42.4	ug/L	10	85	60	130			
Benzene		5.16	ug/L	0.50	103	71	133			
Bromochloromethane		4.92	ug/L	0.50	98	68	131			
Bromodichloromethane		5.40	ug/L	0.50	108	67	138			
Bromoform		4.80	ug/L	0.50	96	64	136			
Bromomethane		4.36	ug/L	0.50	87	60	138			
Carbon disulfide		5.04	ug/L	0.50	101	46	145			
Carbon tetrachloride		5.36	ug/L	0.50	107	61	144			
Chlorobenzene		5.16	ug/L	0.50	103	78	136			
Chlorodibromomethane		5.12	ug/L	0.50	102	72	136			
Chloroethane		5.16	ug/L	0.50	103	64	136			
Chloroform		5.04	ug/L	0.50	101	69	133			
Chloromethane		4.96	ug/L	0.50	99	63	149			
1,2-Dibromo-3-chloropropane		4.20	ug/L	1.0	84	63	125			
1,2-Dibromoethane		4.64	ug/L	0.50	93	75	131			
Dibromomethane		5.04	ug/L	0.50	101	72	133			
1,2-Dichlorobenzene		5.20	ug/L	0.50	104	78	129			
1,4-Dichlorobenzene		5.20	ug/L	0.50	104	78	131			
Dichlorodifluoromethane		5.24	ug/L	0.50	105	55	141			
1,1-Dichloroethane		5.04	ug/L	0.50	101	72	130			
1,2-Dichloroethane		4.56	ug/L	0.50	91	57	146			
1,1-Dichloroethene		4.92	ug/L	0.50	98	66	142			
cis-1,2-Dichloroethene		5.56	ug/L	0.50	111	74	133			
trans-1,2-Dichloroethene		5.28	ug/L	0.50	106	76	138			
1,2-Dichloropropane		4.88	ug/L	0.50	98	72	135			
cis-1,3-Dichloropropene		4.68	ug/L	0.50	94	75	132			
trans-1,3-Dichloropropene		4.88	ug/L	0.50	98	77	145			
Ethylbenzene		5.12	ug/L	0.50	102	78	131			
2-Hexanone		46.8	ug/L	10	94	72	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 11/11/16
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R270026
Lab ID: LCS110716	54	Laboratory Control Sample				Run: SUB-B270026				11/07/16 10:55
Iodomethane		4.36	ug/L	1.0	87	66	132			
Methyl ethyl ketone		44.8	ug/L	10	90	55	145			
Methyl isobutyl ketone		44.4	ug/L	10	89	73	129			
Methylene chloride		4.76	ug/L	0.50	95	73	126			
Styrene		5.08	ug/L	0.50	102	76	134			
1,1,1,2-Tetrachloroethane		4.88	ug/L	0.50	98	75	135			
1,1,2,2-Tetrachloroethane		4.12	ug/L	0.50	82	72	132			
Tetrachloroethene		5.20	ug/L	0.50	104	78	137			
Toluene		5.20	ug/L	0.50	104	78	134			
1,1,1-Trichloroethane		4.88	ug/L	0.50	98	64	141			
1,1,2-Trichloroethane		4.80	ug/L	0.50	96	72	133			
Trichloroethene		5.04	ug/L	0.50	101	75	138			
Trichlorofluoromethane		4.40	ug/L	0.50	88	58	139			
1,2,3-Trichloropropane		4.56	ug/L	0.50	91	67	133			
Vinyl acetate		4.12	ug/L	1.0	82	31	124			
Vinyl chloride		5.16	ug/L	0.50	103	66	140			
m+p-Xylenes		10.4	ug/L	0.50	104	78	133			
o-Xylene		5.20	ug/L	0.50	104	79	136			
Xylenes, Total		15.6	ug/L	0.50	104	78	136			
Surr: 1,2-Dichloroethane-d4				0.50	95	70	130			
Surr: Dibromofluoromethane				0.50	100	77	126			
Surr: p-Bromofluorobenzene				0.50	97	76	127			
Surr: Toluene-d8				0.50	100	79	122			
Lab ID: BLK110716	54	Method Blank				Run: SUB-B270026				11/07/16 11:54
trans-1,4-Dichloro-2-butene		ND	ug/L	1.0						
Acetone		ND	ug/L	10						
Acrylonitrile		ND	ug/L	3.0						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	1.0						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/11/16
Project: Mister M Landfill
Work Order: H16100556

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: B_R270026
Lab ID: BLK110716	54	Method Blank				Run: SUB-B270026				11/07/16 11:54
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.30						
trans-1,3-Dichloropropene		ND	ug/L	0.30						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	10						
Iodomethane		ND	ug/L	1.0						
Methyl ethyl ketone		ND	ug/L	10						
Methyl isobutyl ketone		ND	ug/L	10						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.40						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	1.0						
Vinyl chloride		ND	ug/L	0.40						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Xylenes, Total		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				0.50	98	70	130			
Surr: Dibromofluoromethane				0.50	101	77	126			
Surr: p-Bromofluorobenzene				0.50	112	76	127			
Surr: Toluene-d8				0.50	103	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT-DEQ Solid Waste Section

H16100556

Login completed by: Tracy L. Lorash
Reviewed by: BL2000\rwilliams
Reviewed Date: 11/1/2016

Date Received: 10/28/2016
Received by: RAT
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	8.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	Not Applicable ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Sample ID on COC includes (office well) and (house well) -ID on bottles does not. Logged in with ID from COC. Samples for Dissolved Metals/Hardness were subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. tl 10/28/16

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: Montana DEQ	Project Name, PWS, Permit, Etc.: Missler Landfill	Sample Origin State: MT	EPA/State Compliance: Yes ☑ No ☐
Report Mail Address (Required): 1520 E. Sixth Ave Helena, MT 59620	Contact Name: John Collins	Phone/Fax: 406 444 2802	Cell:	Sampler: (Please Print) John Collins
☐ No Hard Copy Email: ~~jmmont~~ jcollins3@mt.gov	Invoice Contact & Phone: GAA	Purchase Order:	Quote/Bottle Order:
Invoice Address (Required): ☑ No Hard Copy Email: jcollins3@mt.gov			

Special Report/Formats:
☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☑ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Diss. metals are not filtered or preserved.

Shipped by: hand
Cooler ID(s): 4
Receipt Temp: 8.4 °C
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact: Y N
Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	8260	Metals	Nitrogen, Nitrate+Nitrite	Anions (Cl, SO4)	Phy. Chem.
1	MW-12	10-27-16	1150	W	✓	✓	✓	✓	✓
2	MW-11	10-27-16	1210	W	✓	✓	✓	✓	✓
3	MW-9R	10-27-16	1400	W	✓		✓	✓	✓
4	MW-DW (observed)	10-27-16	1445	W	✓	✓	✓	✓	✓
5	MW-HW (observed)	10-27-16	1515	W	✓	✓	✓	✓	✓
6									
7									
8									
9									
10									

LABORATORY USE ONLY H16100556

Custody Record MUST be Signed

Relinquished by (print): John Collins	Date/Time: 10/28/16 1355	Signature:	Received by (print):	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: ✓			Received by Laboratory: Rebecca Tooke	Date/Time: 10/28/16 1355	Signature: Rebecca Tooke

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

APPENDIX B: RESULTS OF STATISTICAL ANALYSES

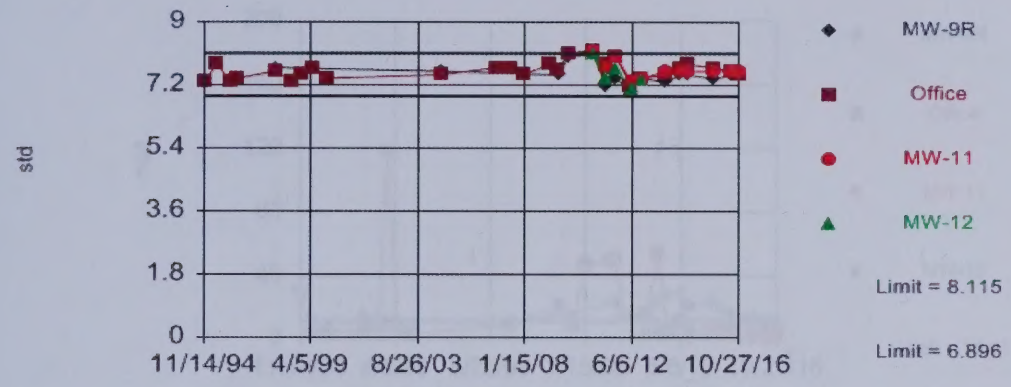
Figure F-1: Prediction Limit Analysis for pH

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.506, Std. Dev.=0.2238, n=28. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9754, critical = 0.924. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 1/17/2017 8:56 AM

Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

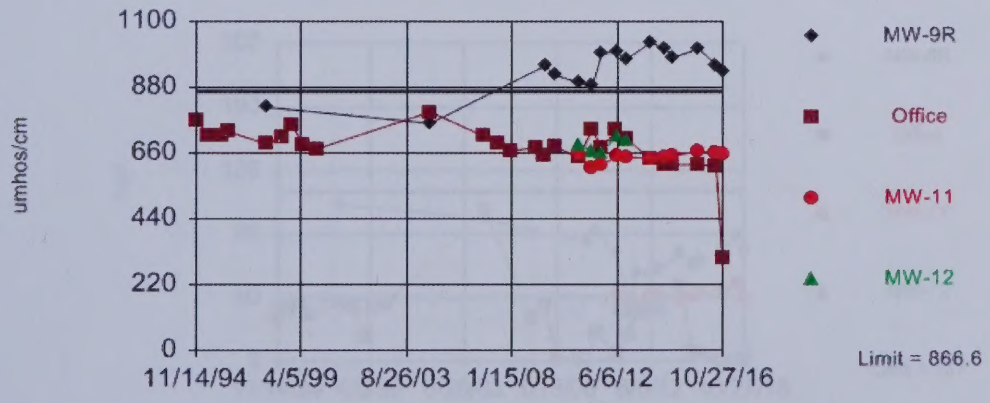
Figure F-2: Prediction Limit Analysis for Conductivity

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=770.4, Std. Dev.=39.84, n=28. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9468, critical = 0.924. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 1/17/2017 9:15 AM

Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

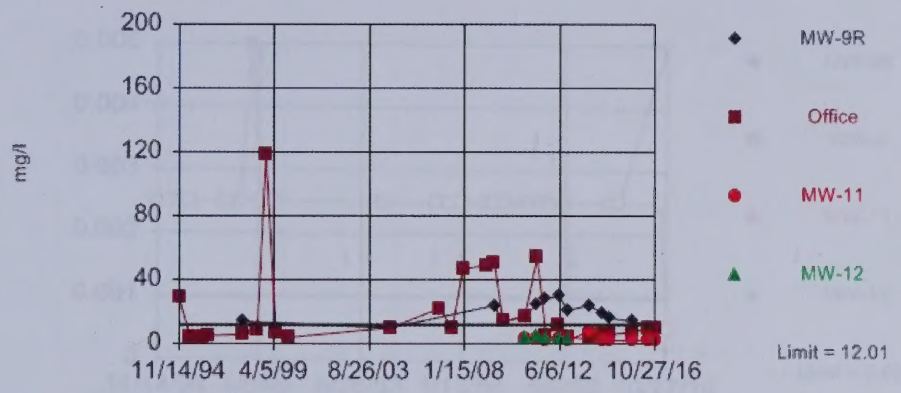
Figure F-3: Prediction Limit Analysis for Chloride

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.607, Std. Dev.=2.238, n=28. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9383, critical = 0.924. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 1/17/2017 9:16 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

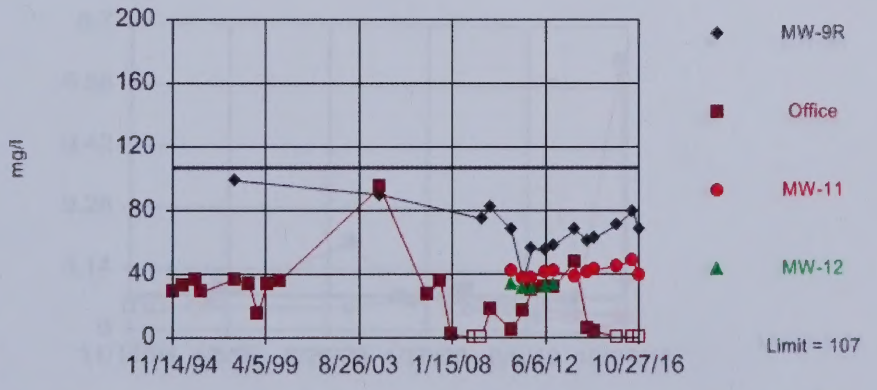
Figure F-4: Prediction Limit Analysis for Sulfate

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 28 background values. Report alpha = 0.125. Individual comparison alpha = 0.03283. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 1/17/2017 9:17 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

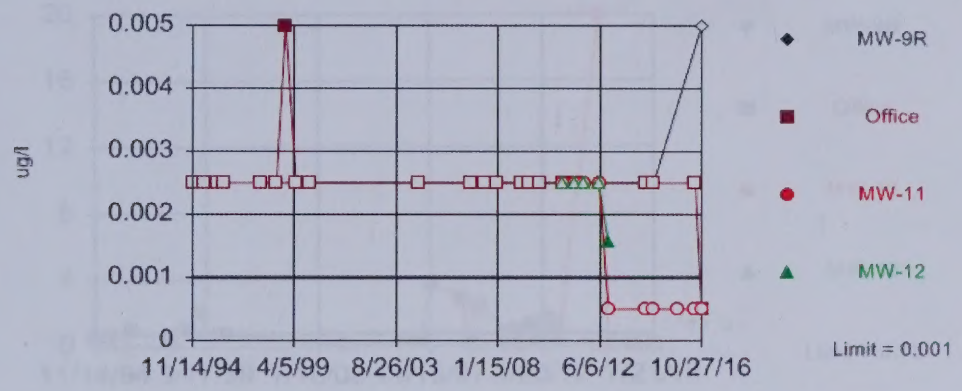
Figure F-5: Prediction Limit Analysis for Arsenic

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 27) were censored; limit is most recent reporting limit. Report alpha = 0.129. Individual comparison alpha = 0.03395. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Arsenic Analysis Run 1/17/2017 9:51 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

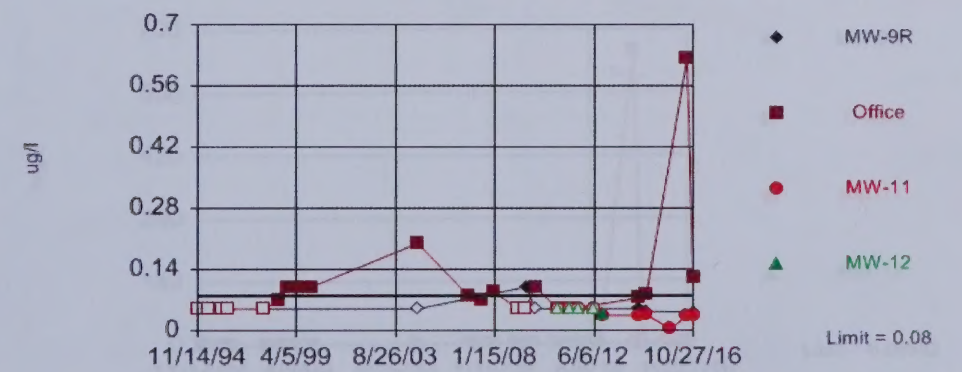
Figure F-6: Prediction Limit Analysis for Barium

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 27 background values. 59.26% NDs. Report alpha = 0.129. Individual comparison alpha = 0.03395. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Barium Analysis Run 1/17/2017 10:04 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas



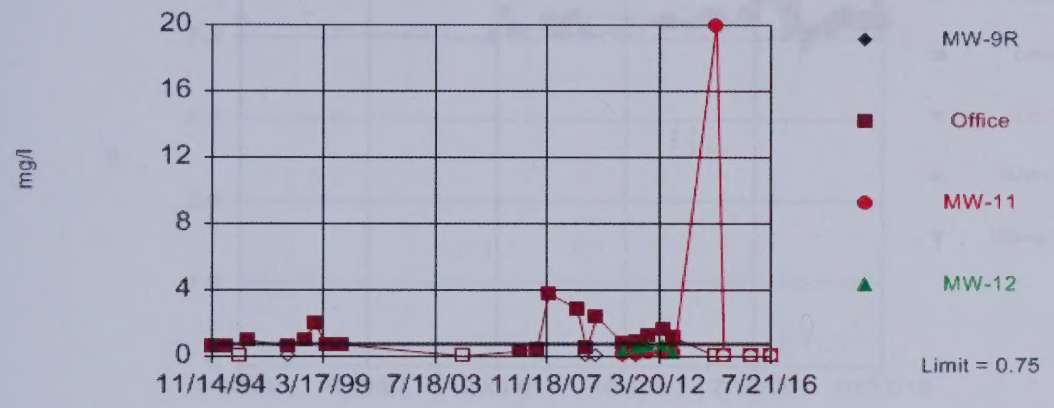
Figure F-7: Prediction Limit Analysis for Iron

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 27 background values. 74.07% NDs. Report alpha = 0.129. Individual comparison alpha = 0.03395. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Iron Analysis Run 8/9/2016 8:30 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

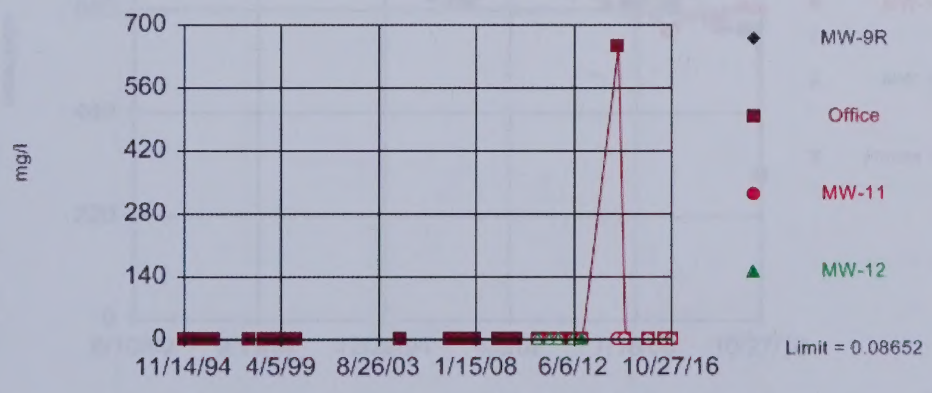
Figure F-8: Prediction Limit Analysis for Zinc

Sanitas™ v.9.5.30 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation): Mean=0.1736, Std. Dev.=0.04991, n=28, 3.571% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9582, critical = 0.924. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Zinc Analysis Run 1/17/2017 10:05 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 10 sanitas

Figure F-9: Trend Analysis for pH

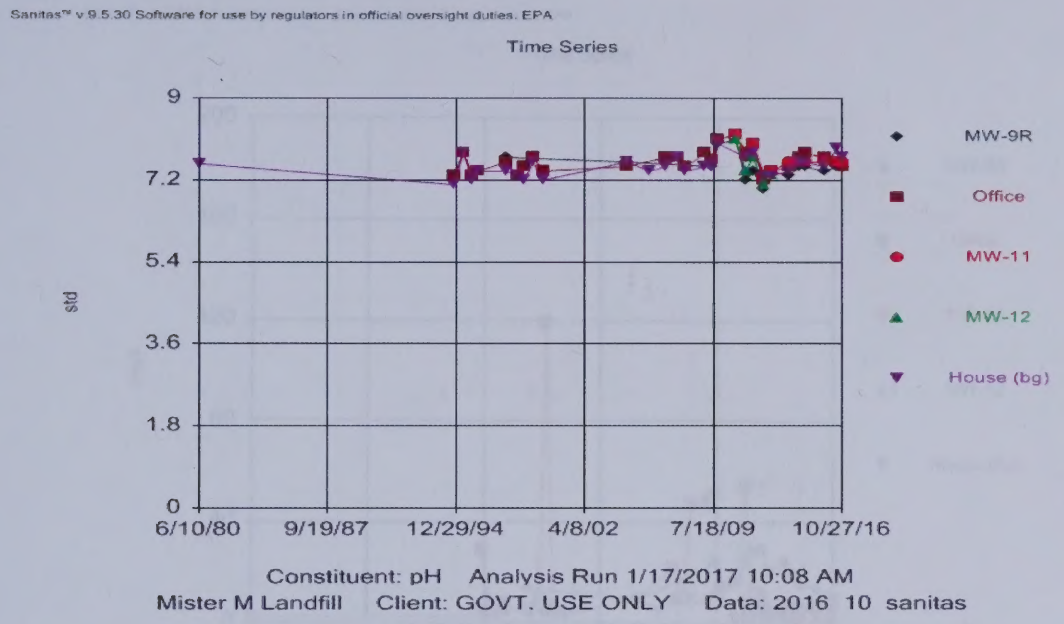


Figure F-10: Trend Analysis for Specific Conductance

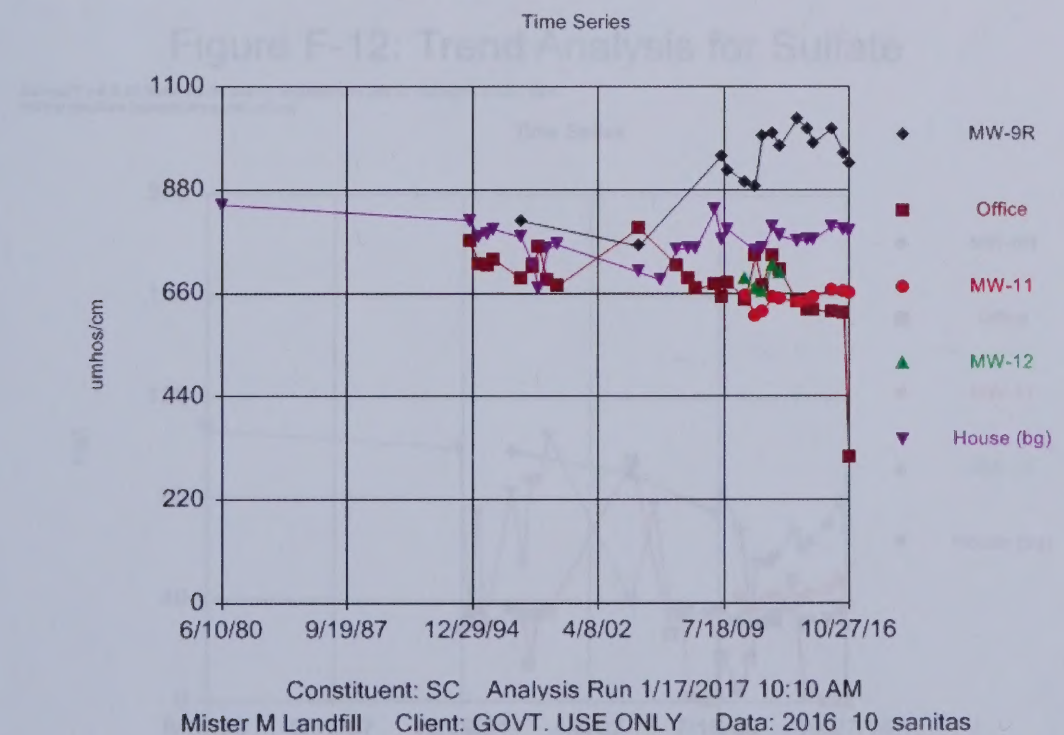




Figure F-11: Trend Analysis for Chloride

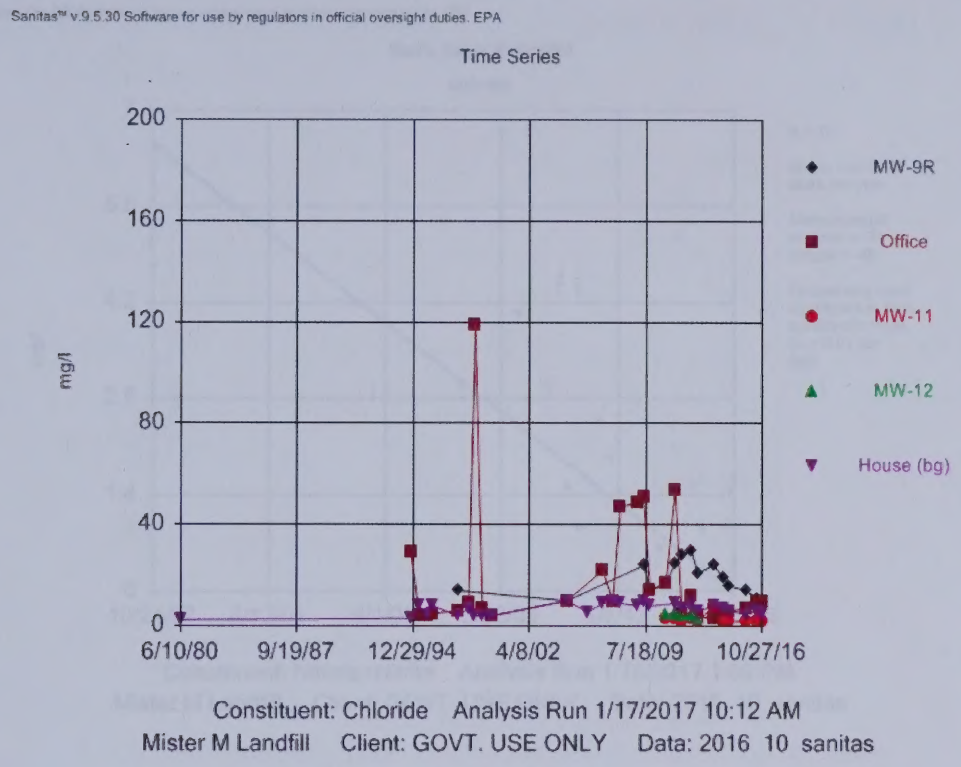


Figure F-12: Trend Analysis for Sulfate

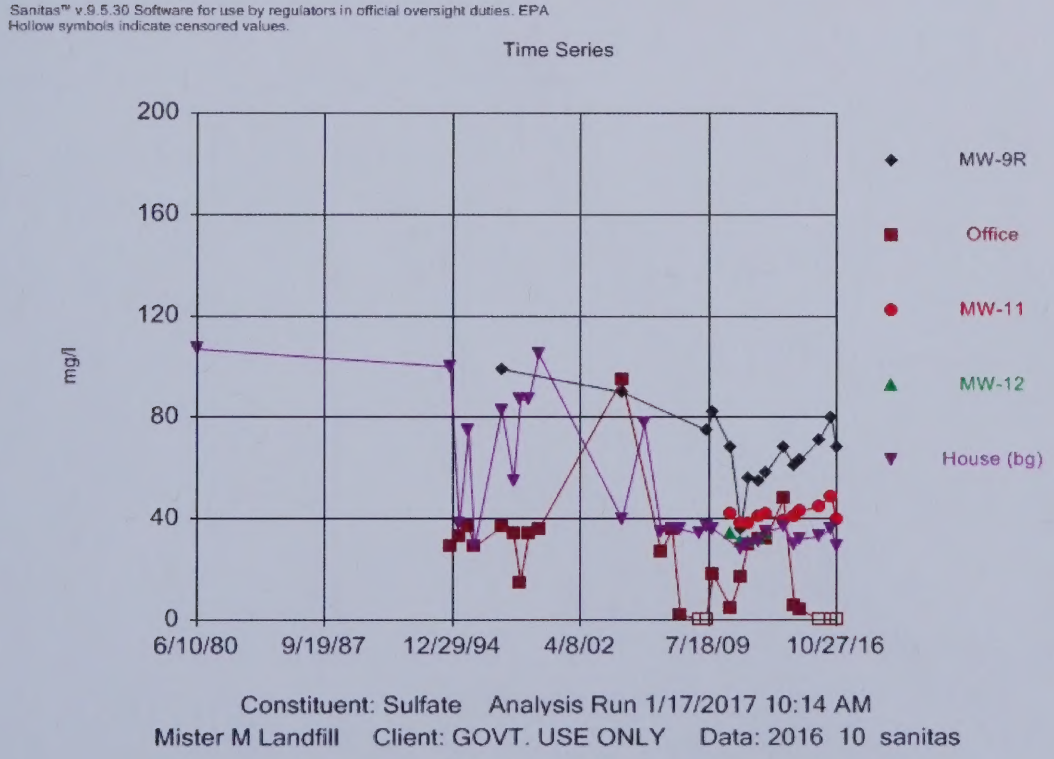




Figure F-13: Trend Analysis for Nitrate + Nitrite

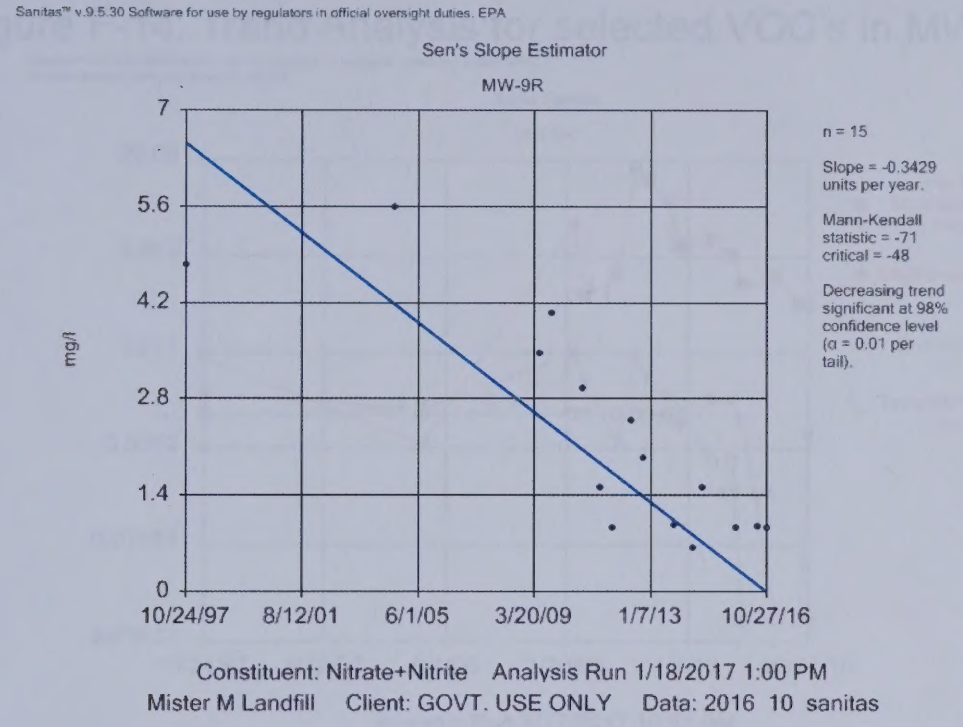


Figure F-14: Trend Analysis for selected VOC's in MW-9R

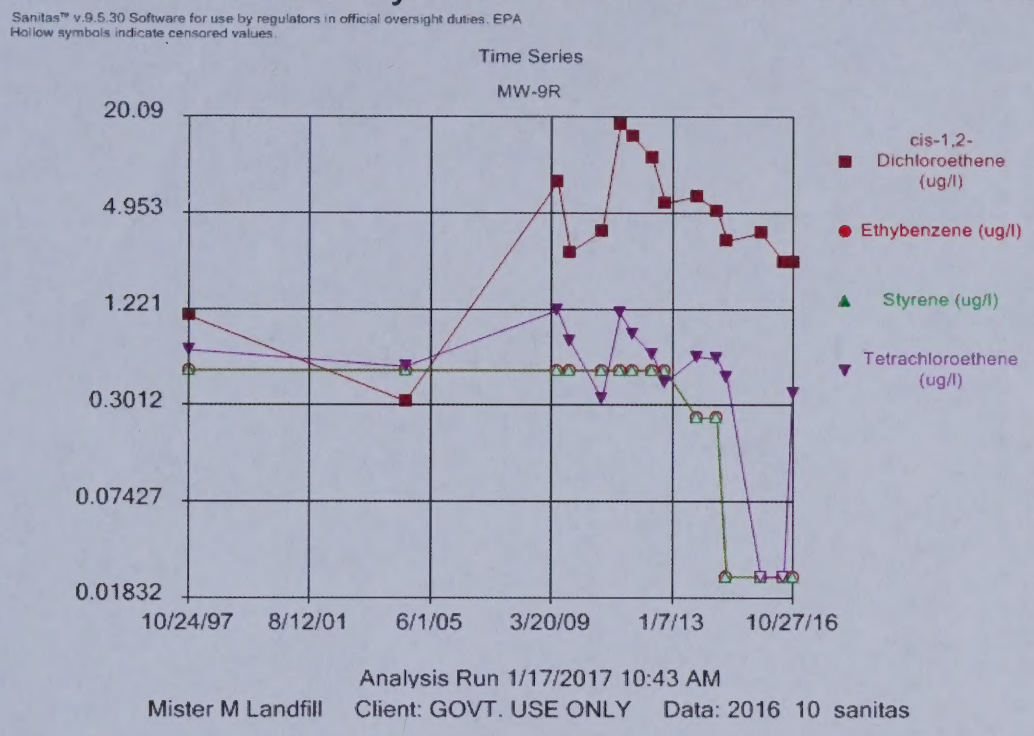
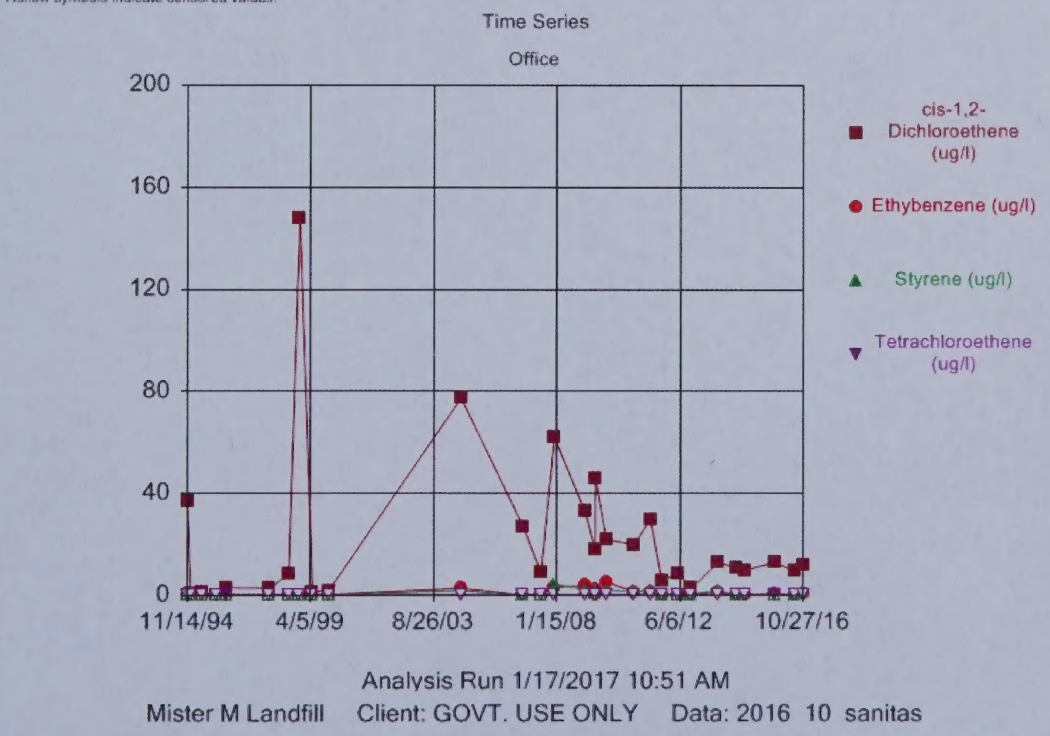


Figure F-15: Trend Analysis for selected VOC's in MW-OW



Correspondence Slip

Date Requested: 1-19-17

Originator: JC

Date Needed By: 1-31-17

REVIEW ROUTING

Name	Task	Initial/Date
SARA NELSEN	Proof	SN 1/27
MDH		/
RT		/
		/

Mail original via:
O Regular O Certified O Registered O FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

This is an internal proof for our files.

Mail copy of enclosures to CC's? Y N

Copies of enclosures for file needed? Y N

Copy of letter for file needed? Y N

Email copies sent? Y N

EMAIL copy sent to Project Originator? Y N

County Fergus
Facility & # 302

Closure	Landfarm
Finan Assur	Liner
GW ~~Corr Meas~~	Methane
GW Monitoring	O & M
~~GW Reports~~	Run-on
Inspections	

Other: _____

Monitoring Well Purging and Sampling Form

Site Name: Mixon LF Sample Location: MW-12

Personnel: JC Sample ID:

Date: 7-21-16 Field Conditions: sunny mid 70's

Condition of Well: excellent

Depth to Water (DTW): 8.82 Total Depth of Well (TD): 105.2

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 96.38 Three Well Volumes: 4 gallons

Purge Equipment: Grig. bailer Pump Depth: Start Time: 10 40

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. TDS (NTU)	Comments
11⁰⁰	10	—	—	7.30	687	19.42	-30.1	9.23	0.51	
1110	15	—	—	7.36	713	16.53	-26.3	9.11	0.47	
1120	20	—	—	7.35	724	16.13	-25.4	9.07	0.47	stabilized

Sample Time: 11²⁵ Sampling Method: Grig. Bailer

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs ✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC ✓	
250mL Plastic	HNO_3	Dissolved Metals ✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite ✓	

Total Volume Purged: 20 Final Depth to Water: End Time: 11³⁰

Notes: Calibrated In-situ Instrument w/ single cal. solution

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Miskin LF Sample Location: MW-11

Personnel: JC Sample ID:

Date: 7-21-16 Field Conditions: sunny 80°

Condition of Well: excellent

Depth to Water (DTW): 36.20 Total Depth of Well (TD): 54'

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 4.8 Three Well Volumes: 24.4

Purge Equipment: Rip. Bailer Pump Depth: — Start Time: 11:40

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. TDS (NTU)	Comments
12:04	10	—	—	7.54	665	22.20	-45.8	3.25	0.43	
12:09	15	—	—	7.58	665	16.48	-151.3	4.29	0.43	
12:17	20	—	—	7.56	679	15.11	-211	7.01	0.75	

Sample Time: Sampling Method: Rip. Bailer

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs ✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC ✓	
250mL Plastic	HNO_3	Dissolved Metals ✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite ✓	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Hinkley MW LF Sample Location: Hinkley

Personnel: JL Sample ID:

Date: 7-21-16 Field Conditions: Sunny, 80's

Condition of Well:

Depth to Water (DTW): 41' Total Depth of Well (TD): 52

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 9 Three Well Volumes: 4.5

Purge Equipment: Rigs Bailer Pump Depth: — Start Time: 12°

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. TPS (NTU)	Comments
1335	4	—	—	7.43	837	21.33	106.8	3.02	0.59	
1345	4.5	—	—	7.46	820	18.50	78.9	8.74	0.60	Sandy Dry

Sample Time: 1345 Sampling Method: Rigs Bailer

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs ✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC ✓	
250mL Plastic	HNO_3	Dissolved Metals NO	
250mL Plastic	H_2SO_4	Nitrate+Nitrite ✓	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Miske Mn LF Sample Location: MW-OW

Personnel: JC Sample ID:

Date: 7-26-16 Field Conditions: hot-sunny 80's

Condition of Well:

Depth to Water (DTW): 33.5 Total Depth of Well (TD): 77

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: *

Purge Equipment: Rig. Bailer Pump Depth: — Start Time: 1408

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU) TDS	Comments
1410	10	—	—	7.50	637	17.95	99.9	8.66	0.40	
1419	15	—	—	7.53	639	14.58	72.3	3.01	0.72	
1735	17	—	—	7.55	641	14.61	72.2	3.00	0.72	

Sample Time: 1735 Sampling Method: SAA

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: Final Depth to Water: End Time: 1435

Notes: * Too much volume to bail, will purge to 3X stabilization

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Walker in LF Sample Location: MW-4MW

Personnel: JC Sample ID:

Date: 7-21-16 Field Conditions: Sunny Hot, dry

Condition of Well: good

Depth to Water (DTW): — NA Total Depth of Well (TD): NA

Well Diameter: Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes:

Purge Equipment: New pump Pump Depth: — Start Time: 1440

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU) TDS	Comments
1445	15	3 ±	—	7.90	778	21.78	150.4	8.22	0.54	
1450	26	"	—	7.69	761	19.54	118	8.04	0.55	
				7.76	740	18.86	71	8.08	"	

Sample Time: 1500 Sampling Method: Bucket

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mission LF Sample Location: MW-12

Personnel: JC Sample ID:

Date: 10-27-16 Field Conditions: pt. cloudy NE wind ~60°

Condition of Well: Good

Depth to Water (DTW): 10.4 Total Depth of Well (TD): 104

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: 45 g.

Purge Equipment: Disp. SS Bailer Pump Depth: — Start Time: 1050 1110

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU) TDS	Comments
1127	15	—		7.20	748	12.51	-75.5	2.67	0.44	(gpt)
1140	20	—		7.35	671	11.96	-84.1		0.44	"
1145	45	—		7.37	648	12.17	-80.2	9.81	0.42	"

Sample Time: 1150 Sampling Method: SAA

Containers	Preservative	Parameters		Comments
2 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	NaOH	Cyanide	—	NO
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite, COD	✓	
250mL Plastic	none	Sulfate, Chloride, pH, SC	✓	

Total Volume Purged: 30 Final Depth to Water: — End Time:

Notes: Calibration sheet Troll 9500 -

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Western LF Sample Location:

Personnel: DC Sample ID: MW-11 (11) DUP

Date: 10-27-16 Field Conditions: cloudy 55°

Condition of Well: good

Depth to Water (DTW): 36.2 Total Depth of Well (TD): 52

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: ____ Three Well Volumes: ≈ 33

Purge Equipment: Disp-SS Bailer Pump Depth: — Start Time: 1205

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	~~Turb.~~ TDS (NTU)	Comments
1215	10	—	—	7.66	618	14.32	-65.7	9.27	0.40	(eq't)
1230	20	—	—	7.65	609	12.44	-53.7	2.57	11	"
1235	23	—	—	7.57	628	12.17	-63.3		0.41	"

Sample Time: 1240 Sampling Method: SAA

Containers	Preservative	Parameters		Comments
2 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	NaOH	Cyanide	✓	NO DUP
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite, COD	✓	
250mL Plastic	none	Sulfate, Chloride, pH, SC	✓	

Total Volume Purged: ~~30~~ 23 Final Depth to Water: — End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Miskelm AF Sample Location: MW-9R

Personnel: JC Sample ID:

Date: 1-27-16 Field Conditions: pt. cloudy 60"

Condition of Well: Good

Depth to Water (DTW): 42.7 Total Depth of Well (TD): 51

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: 5.75

Purge Equipment: Bladder Pump Pump Depth: Start Time: 1335

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU) TPS	Comments
1345	4.5	—	—	7.59	879	14.45	20.0	3.87	0.55	(Bad)
1351	5.75	—	—	7.58	652	11.38	27.9	9.40	0.57	
		(near dry Sample)								

Sample Time: 1400 Sampling Method: SAA

Containers	Preservative	Parameters	Comments
2 x 40mL Vial	HCl	VOCs ✓	
500mL Plastic	NaOH	Cyanide	
250mL Plastic	HNO_3	Dissolved Metals	
250mL Plastic	H_2SO_4	Nitrate+Nitrite, COD ✓	
250mL Plastic	none	Sulfate, Chloride, pH, SC ✓	

Total Volume Purged: Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: (Wisker in CF) MW-OW Sample Location: MW-OW

Personnel: JC Sample ID: MW-OW

Date: 10-27-16 Field Conditions: cloudy 60's

Condition of Well: Good

Depth to Water (DTW): 35.6 Total Depth of Well (TD): 79

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 44 (.653x3) Three Well Volumes: * 33.16

Purge Equipment: Bladder Pump Pump Depth: Start Time: 1405

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. TDS (NTU)	Comments
1420	10	—	—	7.78	560	12.87	-20.9	5.22	0.37	(Bottle)
1430	20	—	—	7.56	573	11.20	-24.3	3.25	"	"
1440	25			7.55	570	11.30	-28.3	3.50	"	

Sample Time: 1445 Sampling Method: SAP

Containers	Preservative	Parameters		Comments
2 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	NaOH	Cyanide		
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite, COD	✓	
250mL Plastic	none	Sulfate, Chloride, pH, SC	✓	

Total Volume Purged: Final Depth to Water: End Time:

Notes: There is no way I could bail 83 gallons - I will go to 70 gallons, and begin field parameter reading.

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mister M LF Sample Location: New well

Personnel: JC Sample ID: MW-HW

Date: 10-27-16 Field Conditions: cloudy 70°

Condition of Well: Good

Depth to Water (DTW): NA Total Depth of Well (TD):

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: NA Three Well Volumes: NA

Purge Equipment: Well pump Pump Depth: — Start Time: 1450

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. ~~(NTU)~~ TDS	Comments
1452	—	3 ±	—	7.85	743	13.67	28.7	9.10	0.49	(good)
1500		"	—	7.80	752	12.62	29.1	9.25	"	"
1510	—	"	—	7.86	761	12.26	29.7		"	

Sample Time: 1515 Sampling Method: Direct

Containers	Preservative	Parameters		Comments
2 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	NaOH	Cyanide		
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite, COD	✓	
250mL Plastic	none	Sulfate, Chloride, pH, SC	✓	

Total Volume Purged: 5? Final Depth to Water: End Time:

Notes:

Sampler Signature:

Methane Monitoring Form

Site Name: Mistlam LF Date: 10-28-16

Personnel: JL.

Field Conditions: pd cloudy 45°

Meter Model: Gfg G450

Calibration
Time: 0820 Standard: CH4=50% LEL Pre-Reading: 50% Post-Reading: 50%

Measurement Point	Time	CH_4	O_2	CO	H_2S	Comments
6m	0827	0	—	0.4	0	
5m	0840	0	—	0.4	0	
mw-2	0845	0	—	0.6	0	
mw-8	0850	0	—	0.6	0	
North end	0900	0	—	0.6	0	

Notes: Cap looks good, no issues or concerns

Signature:

CLOSED MISTER M LANDFILL, LICENSE #302
LEWISTOWN, FERGUS COUNTY, MONTANA

JULY 2016 GROUNDWATER MONITORING RESULTS AND STATISTICAL ANALYSES

Prepared By:

Montana Department of Environmental Quality

Solid Waste Section

August 30, 2016

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1.0 INTRODUCTION

Groundwater monitoring at the closed Mister M Landfill, License #302, was conducted in July 2016 by the Department of Environmental Quality (DEQ), Solid Waste Section (SWS), according to the July 2011 Sampling and Analysis Plan for Groundwater (SAP) (MDEQ, 2011 [2]). The Mister M Landfill is located in Fergus County, Montana, approximately four miles east of Lewistown on US Highway 87. The landfill lies in a small south facing coulee which drains to Boyd Creek. The facility received Class II wastes from 1956 to 1998, and was granted interim closure status on December 5, 2000. The current owners, Marvin and Sandra Mintyala, operated the facility from 1974 until approximately 2000, when the site was abandoned.

According to the Geohydrologic Characterization (Gillespie, 1993 revised; and Gillespie, 1994) the landfill is underlain by the Kootenai formation, which consists of predominately shale with some silty sandstone. A basal unit of sandstone in the Kootenai formation is the uppermost aquifer in the area. Minor amounts of water have been encountered in the upper portions of the Kootenai formation but most of the monitoring wells completed in the upper Kootenai formation at the site have frequently been dry or contained minimal volumes of water.

Previous groundwater sampling at the facility was conducted by the owners or their consultants from 1993-1999 (Gillespie, 1995 and 1996; Energy Laboratories, 1997, 1998 [1], and 1998 [2]; and Portage Environmental, 1999 and 2000). From 2003-2007 Tetra Tech, Inc. was authorized by the DEQ to conduct groundwater monitoring in the absence of action by the owners (Energy Laboratories, 2003, through 2007; Maxim, 2005; Tetra Tech, 2006 and 2008). DEQ SWS personnel have conducted groundwater monitoring from January 2009 to the present.

2.0 FIELD PROCEDURES

DEQ SWS personnel conducted monitoring activities on July 21 and 22, 2016. This included monitoring well inspections, Static Water Level (SWL) measurements, and groundwater sample collection as part of the detection monitoring program currently in effect for the facility. Copies of the field notes are in the SWS files. All field activities described in this report were conducted in accordance with the approved July 2011 SAP, and any deviations from the SAP are described herein. The analysis of groundwater samples was conducted by Energy Laboratories Inc., in Helena, Montana.

2.1 WELL INSPECTIONS

The monitoring wells currently in use were inspected on July 21, 2016. All locks were replaced with a keyed alike Master locks. MW-OW does not have an external protective casing. All other monitoring wells are in good condition.

2.2 WATER LEVEL MEASUREMENTS

Static water levels were measured on July 21, 2016, in wells MW-5, MW-9R, MW-11, MW-12, and MW-OW using a Slope Indicator electric water level meter. The total depths of wells MW-9R, MW-11, and MW-12 were also recorded.

2.3 GROUNDWATER SAMPLING

Groundwater samples were collected July 21, 2016, from wells MW-9R, MW-11, MW-12, MW-HW, and MW-OW. At each well, samples were collected for all of the parameters listed in the SAP. The wells were purged and sampled using disposable bailers. Field water quality measurements were made using an In-Situ Smart Troll 9500 water quality meter, which was calibrated by SWS personnel.

3.0 MONITORING RESULTS

3.1 GROUNDWATER LEVELS AND FLOW

The July 2016 water levels were very similar to the October 2015 levels, with the exception of the deep wells. The deep wells water levels are historically variable and are based on relative elevations. Figure 4 displays the October 2015 static water levels on a map. No attempt was made to contour the static water levels as the shallow wells are completed in minor water bearing zones of unknown horizontal extent and connectivity, and the water level measurements made in the deep water bearing zone are from wells that have not yet been surveyed. Groundwater flow in the shallow water bearing zones likely follows local topography and flows in a south to southwest direction. Groundwater flow in the deep water bearing zone is assumed to be to the southwest based on records from domestic wells in the area. Tables containing historic water levels and hydrographs for both the shallow and deep water bearing zones are included in Appendix D.

3.2 DATA VALIDATION

Upon receipt from the laboratory, the analytical results were validated as described in the SAP to ensure that the data quality objectives had been met. All samples were analyzed within the required holding times. The relative percent difference for all field and laboratory duplicates were within control limits, all control samples and blanks were acceptable.

3.3 GROUNDWATER ANALYTICAL RESULTS

A copy of the laboratory analytical report is included in Appendix A. Historical concentration plots for all parameters detected during this sampling event and a table containing historical analytical results is included in Appendix C.

3.3.1 Indicator Parameters

Indicator parameters for the site continue to be stable with little fluctuations from those observed in the shallow background well MW-5 in previous sampling events and in other shallow wells.

3.3.2 Dissolved Metals

Arsenic, Barium, Cadmium, Iron and Zinc were detected at low levels in facility wells during this sampling event. None of the metals detected exceeded the groundwater protection standards.

3.3.3 Volatile Organic Compounds

Overall there do not appear to be any significant increasing trends in Volatile Organic Compounds (VOC's) at the site. MW-9R had one detection of cis-1, 2-Dichloroethene at 2.4 *u*g/l. Detection of VOC's in other wells are at estimated values, J flagged by the Laboratory, which are below the detection limit.

4.0 Statistical Analysis

4.1 Statistical Methods

The statistical analyses were performed using the statistical software package Sanitas v.9.5. The validated analytical data was first screened to determine which parameters required statistical analysis. Only parameters which were detected in one or more compliance wells (MW-11 and MW-12) and had been historically detected at least once in the background well (MW-HW) were analyzed using an inter-well prediction limit. If a parameter was detected in a compliance well, but was always non-detected in the background dataset, the background value was set as the detection limit and any detection of that parameter above the detection limit was considered a statistical exceedance of background. As a result of the screening described above, the parameters selected for prediction limit analysis were: pH, Specific Conductivity, Chloride, Sulfate, Arsenic, Barium, Iron, and Zinc. Trend analysis was run for selected VOC's.

The background dataset was screened to determine if trends were present using the Sen's Slope/Mann Kendall test. Each selected parameter was compared to the background dataset using an inter-well prediction limit analysis. The Sanitas software determines the distribution of the background dataset and performs the appropriate statistical test for that distribution. If the prediction limit analysis indicated an exceedance of background levels, a Sen's Slope/Mann Kendall test was conducted to analyze any trends in the data. All of the statistical tests were performed at a 95% site-wide confidence level, or the maximum confidence level that was possible given the size of the background dataset if a 95% confidence level was not possible.

A Sen's Slope/Mann Kendall test was also conducted on all parameters detected in all wells to analyze any trends in the data.

4.2 Analysis Results

Table 1 contains a summary of the results of the statistical analyses. The full results of the statistical analyses are included in Appendix F. Due to the small size of the background dataset the site-wide confidence levels for non-parametric tests were less than 95%.

The values from the current sampling event for all parameters in compliance wells MW-11 and MW-12 were within prediction limits.

Trend analyses for well MW-9R indicated non-significant decreasing trends for Sulfate and Nitrate + Nitrite. The cause of these trends is unknown, but MW-9R is completed in a shallow aquifer which produces very little water, thus changes in groundwater chemistry are not unexpected.

5.0 Conclusions and Recommendations

Groundwater monitoring was conducted by the SWS at the Mister M Landfill on July 21 and 22, 2016. Water levels were measured in five wells, and groundwater samples were collected from five wells. All currently used wells were inspected.

Water levels will continue to be monitored semi-annually in the future to provide additional data on water level trends.

Additional data from the background well, MW-HW, is useful for evaluating the results from the other deep wells and increasing the power of the statistical tests. MW-HW will be sampled on an **annual** basis to increase the size of the background dataset for the compliance wells. Three VOCs detected in MW-9R at much lower levels than previous sampling events and there appears to be an overall slightly downward trend. The contaminants present in MW-9R are different than those seen in MW-OW indicating that the contamination may be from a different source or MW-9R may be closer to the source area than MW-OW; however the precise source of these VOCs is unknown. Well MW-9R will continue to be sampled **annually** in future events for Inorganics and VOCs. Well MW-OW continues to show both inorganic and organic contamination. Sulfate and Chloride have returned to near normal levels, while Zinc and Iron concentrations remain slightly above normal levels. These metals are possibly the result of the galvanized well casing and or previous down-hole equipment associated with the use of MW-OW as a water supply well and not due to landfill leachate.

The analytical results and statistical analyses from compliance wells MW-11 and MW-12 show no impacts from landfill leachate. The one VOC, cis-1, 2-Dichloroethene, which was previously detected at a very low level in MW-12 was not detected during the past five sampling events. All parameters in the compliance wells are below background levels thus the facility remains in detection monitoring. MW-11 and MW-12 will be sampled **annually** as the point of compliance wells for the facility. The next groundwater sampling event is tentatively scheduled for October 2016. Thereafter the wells mentioned above will be sampled on an **annual** basis; the SAP will be updated to reflect that change.

Additional justification for the reduction in monitoring frequency is a reduction in the cost associated with the monitoring. Total per year=**$4,620**

- Analytical cost per year: $3,750
- Equipment rental: $550
- Hotel and meals and vehicle rental: $350

Table 1: Summary of Results of Statistical Analyses for July 2016 Data

		Prediction Interval Analysis					Trend Analysis	
Parameter	**Well**	**Distribution**	**Confidence Level (%)**	**Prediction Limit(s)**	**Result**	**Exceeds Limit?**	**Slope (per yr)**	**Significant ?**
pH	MW-9R	normal	98	6.88-8.11	7.5	No	0.01	No
	MW-11	normal	98	6.88-8.11	7.6	No	0.01	No
	MW-12	normal	98	6.88-8.11	7.3	No	-0.36	No
	MW-OW	normal	98	6.88-8.11	7.6	No	0.01	No
SC	MW-9R	N/A	98	867.6	956	Yes	11.88	Yes
	MW-11	normal	98	867.6	667	No	6.46	No
	MW-12	normal	98	867.6	713	No	12.15	No
	MW-OW	normal	98	867.6	617	No	-4.87	Yes
Chloride	MW-9R	normal	98	12.41	11	No	0	No
	MW-11	normal	98	12.41	2	No	0	No
	MW-12	normal	98	12.41	3	No	0	No
	MW-OW	normal	98	12.41	10	No	0	No
Sulfate	MW-9R	non-normal	98	107	80	No	-1.54	No
	MW-11	normal	98	107	49	No	1.49	No
	MW-12	normal	98	107	37	No	0.64	No
	MW-OW	normal	98	107	10	No	-0.91	No
Nitrate+Nitrite	MW-9R	normal	98	0.44	0.94	Yes	-0.27	No
Iron	MW-11	normal	98	0.75	*ND*	No	0	No
	MW-12	N/A	N/A	0.75	*ND*	No	0	No
	MW-OW	non-normal	98	0.75	*ND*	No	0	No
Zinc	MW-12	normal	98	0.09	*0.62*	No	0	No
	MW-OW	normal	98	0.09	*0.555*	Yes	0.02	Yes
cis-1,2-Dichloroethene	MW-9R	non-normal	98	N/A	2.4	N/A	-0.05	No
	MW-OW	non-normal	98	N/A	9.6	N/A	0.28	No
Ethyl benzene	MW-OW	normal	98	N/A	0.057	No	0	No
	MW-9R	normal			*ND*		-0.02	Yes
Styrene	MW-OW	normal	98	N/A	0.22	No	0	No
Tetrachloroethene	MW-9R	normal	98	N/A	*ND*	No	-0.05	No

Notes:
N/A = Not analyzed
ND = Non-detect
N/A = Not applicable



Figure 4: Groundwater Levels

Base Aerial Photo from 2012.

The reference elevations for MW-9R, MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

Table B-1: Historical Water Levels

Date	MW-1	MW-2	MW-4	MW-5	MW-6	MW-7	MW-7R	MW-8	MW-9	MW-9R	MW-10	MW-10R	MW-11	MW-12	MW-OW
6/16/93	Dry	Dry	Dry	Dry	Dry	Dry		Dry							NM
10/14/94	NM	NM	NM	NM	NM	NM		NM	Dry		4155.69				NM
12/15/95	4154.12	Dry	Dry	4177.65	4160.64	4173.00		Dry	4140.77		4160.92				NM
3/28/96	4157.37	NM	NM	NM	NM	4176.51		NM	4139.43		4158.09				NM
11/29/05	4154.17	4174.1	NM	4181.82	Dry		Dry	4155.06		4159(1)		4161(1)			NM
12/18/07	Dry	Dry	Dry	4165.54	Dry		Dry	4155.04		4159(1)		4164(1)			4162(1)
1/21/09	4153.12	Dry	NM	4165.75(2)	?(3)		4177(1)(4)	NM		4159(1)		4164(1)			4163(1)
6/1/09	NM	NM	NM	4172.02	NM		NM	NM		4163(1)		4170(1)			4170(1)
10/26/09	NM	NM	NM	4165.23	NM		NM	NM		4160(1)		4164(1)			4163(1)
2/26/10	NM	NM	Dry	4165.44	4160.07		4177(1)	4154.52		4159(1)		NM(5)			4162(1)
6/21/10	NM	NM	NM	4172.91	4171.36		4190(1)	4169.97		4180(1)		NM(5)			4172(1)
10/25/10	NM	NM		4169.50	4166.84					4161(1)			4168(1)	4167(1)	4168(1)
5/23/11	NM	NM		4179.62	4178.04					4183(1)			4172(1)	Flowing(1)(6)	4179(1)
10/17/11	NM	NM		4171.25	4168.30					4160(1)			4175(1)	Flowing(1)(6)	4171(1)
5/22/12	NM	NM		4174.09	4172.42					4166(1)			4176(1)	Flowing(1)(6)	4173(1)
10/23/12	NM	NM		4166.19	NM					4159(1)			4173(1)	4164(1)	4165(1)
10/23/13	NM	NM		4163.84	4160.36					4158(1)			4170(1)	4164(1)	4166(1)
6/10/14	4148.97	NM		4168.81	4166.35			4152.34		4160(1)			4170(1)	4166(1)	4167(1)
10/1/14	4149.32	NM		4167.83	4160.37			4153.31		4160(1)			4169(1)	4165(1)	4166(1)
10/29/15	NM	NM		4165.45	4160.97			NM		4159(1)			4166(1)	4158(1)	4160(1)
7/21/16	NM	NM		4166	4161.00			NM		4164(1)			4163(1)	4160(1)	4162(1)

Notes:

NM = Not measured

[ ] = Well not present.

(1) Reference elevation estimated from topographic contours (5ft) and field observations

(2) Deeper than tape, 2 ft. of water in well, DTW calculated from TD recorded 12/18/07

(3) Deeper than tape, DTW unknown

(4) 3 in. of water in well, DTW calculated from TD

(5) Well damaged, measurement not possible.

(6) Well flowing artesian at time of measurement, top of casing elevation 4169ft

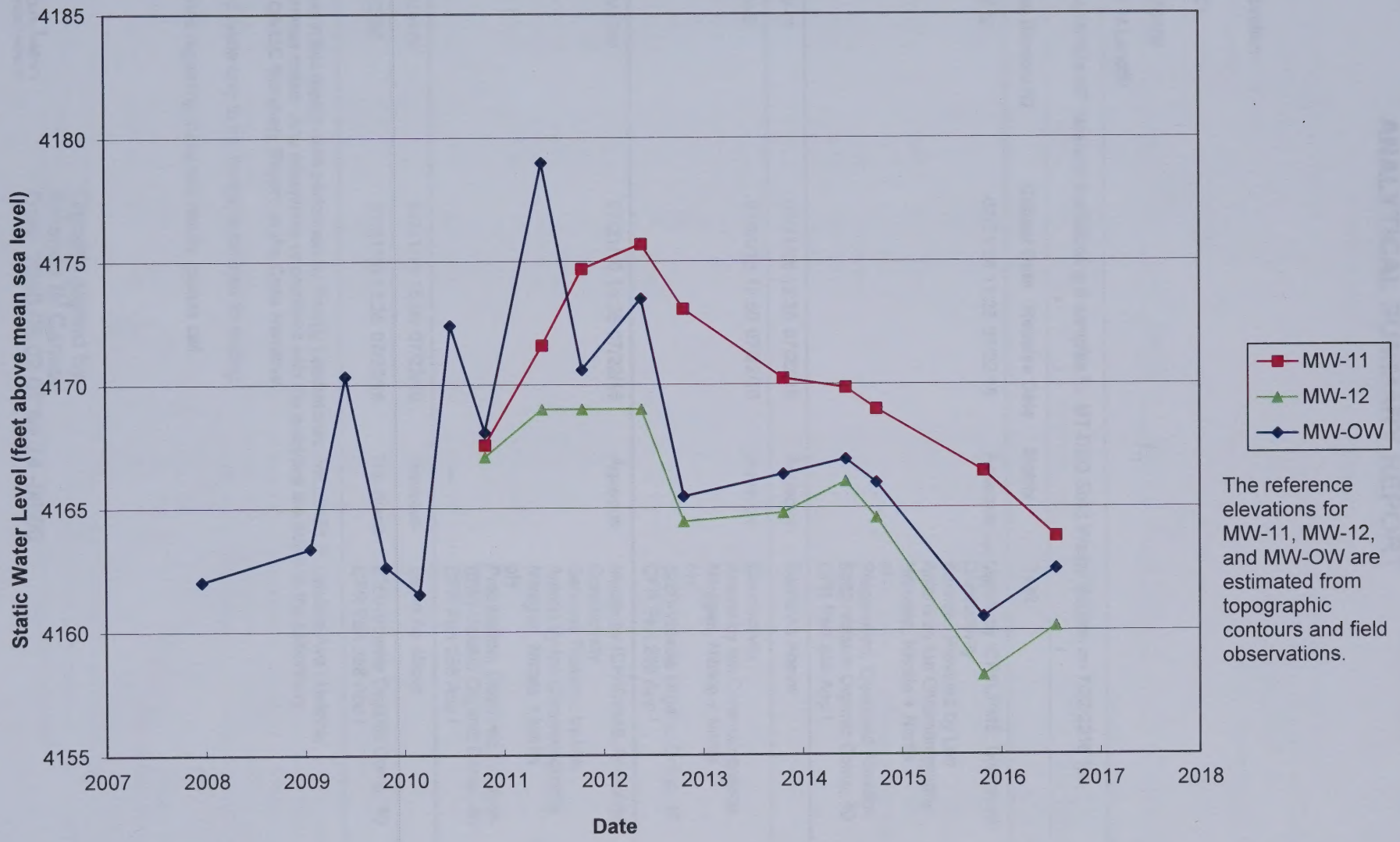
Figure B-1: Static Water Levels in Shallow Wells



The reference elevations for MW-7R, MW-9R, and MW-10R are estimated from topographic contours and field observations.



Figure B-2: Static Water Levels in Deep Wells



The reference elevations for MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

ANALYTICAL SUMMARY REPORT

August 02, 2016

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H16070406

Project Name: Mister M Landfill

Energy Laboratories Inc Helena MT received the following 6 samples for MT-DEQ Solid Waste Section on 7/22/2016 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H16070406-001	MW-I2	07/21/16 11:25	07/22/16	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16070406-002	MW-I1	07/21/16 12:20	07/22/16	Aqueous	Same As Above
H16070406-003	MW-9r	07/21/16 13:50	07/22/16	Aqueous	Conductivity Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16070406-004	MW-OW	07/21/16 14:35	07/22/16	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Services Provided by Lab Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H16070406-005	MW-HW	07/21/16 15:00	07/22/16	Aqueous	Same As Above
H16070406-006	TB5690	07/21/16 11:25	07/22/16	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Amanda Carlson
Assistant Laboratory Manager-Helena,MT

Digitally signed by
Amanda B. Carlson
Date: 2016.08.02 07:59:24 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-001
Client Sample ID: MW-I2

Report Date: 08/02/16
Collection Date: 07/21/16 11:25
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.3	s.u.	H	0.1		A4500-H B	07/22/16 15:18 / SRW
Conductivity @ 25 C	713	umhos/cm		1		A2510 B	07/22/16 15:18 / SRW
INORGANICS							
Chloride	3	mg/L		1		E300.0	07/25/16 11:46 / SRW
Sulfate	37	mg/L		1		E300.0	07/25/16 11:46 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/25/16 14:51 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	07/26/16 19:46 / dck
Arsenic	0.001	mg/L		0.001		E200.8	07/26/16 19:46 / dck
Barium	0.042	mg/L		0.003		E200.8	07/26/16 19:46 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/29/16 12:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/26/16 19:46 / dck
Chromium	ND	mg/L		0.01		E200.8	07/26/16 19:46 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/26/16 19:46 / dck
Copper	ND	mg/L		0.002		E200.8	07/26/16 19:46 / dck
Iron	ND	mg/L		0.02		E200.8	07/26/16 19:46 / dck
Lead	ND	mg/L		0.0003		E200.8	07/26/16 19:46 / dck
Nickel	ND	mg/L		0.002		E200.8	07/26/16 19:46 / dck
Selenium	ND	mg/L		0.001		E200.8	07/26/16 19:46 / dck
Silver	ND	mg/L		0.0002		E200.8	07/26/16 19:46 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/26/16 19:46 / dck
Vanadium	ND	mg/L		0.1		E200.8	07/26/16 19:46 / dck
Zinc	ND	mg/L		0.008		E200.8	07/26/16 19:46 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 14:29 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 14:29 / kjw
Benzene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-001
Client Sample ID: MW-I2

Report Date: 08/02/16
Collection Date: 07/21/16 11:25
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
cis-1,2-Dichloroethene	0.23	ug/L	J	0.50		SW8260B	07/25/16 14:29 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 14:29 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 14:29 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 14:29 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 14:29 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 14:29 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Styrene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/25/16 14:29 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 14:29 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 14:29 / kjw
Surr: 1,2-Dichloroethane-d4	113	%REC		70-130		SW8260B	07/25/16 14:29 / kjw
Surr: Dibromofluoromethane	98.0	%REC		77-126		SW8260B	07/25/16 14:29 / kjw
Surr: p-Bromofluorobenzene	94.0	%REC		76-127		SW8260B	07/25/16 14:29 / kjw
Surr: Toluene-d8	94.0	%REC		79-122		SW8260B	07/25/16 14:29 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-002
Client Sample ID: MW-I1

Report Date: 08/02/16
Collection Date: 07/21/16 12:20
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/22/16 15:23 / SRW
Conductivity @ 25 C	664	umhos/cm		1		A2510 B	07/22/16 15:23 / SRW
INORGANICS							
Chloride	2	mg/L		1		E300.0	07/25/16 11:57 / SRW
Sulfate	49	mg/L		1		E300.0	07/25/16 11:57 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/25/16 14:53 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	07/26/16 19:50 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/26/16 19:50 / dck
Barium	0.034	mg/L		0.003		E200.8	07/26/16 19:50 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/29/16 12:22 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/26/16 19:50 / dck
Chromium	ND	mg/L		0.01		E200.8	07/26/16 19:50 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/26/16 19:50 / dck
Copper	ND	mg/L		0.002		E200.8	07/26/16 19:50 / dck
Iron	ND	mg/L		0.02		E200.8	07/26/16 19:50 / dck
Lead	ND	mg/L		0.0003		E200.8	07/26/16 19:50 / dck
Nickel	ND	mg/L		0.002		E200.8	07/26/16 19:50 / dck
Selenium	ND	mg/L		0.001		E200.8	07/26/16 19:50 / dck
Silver	ND	mg/L		0.0002		E200.8	07/26/16 19:50 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/26/16 19:50 / dck
Vanadium	ND	mg/L		0.1		E200.8	07/26/16 19:50 / dck
Zinc	ND	mg/L		0.008		E200.8	07/26/16 19:50 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 13:20 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 13:20 / kjw
Benzene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-002
Client Sample ID: MW-I1

Report Date: 08/02/16
Collection Date: 07/21/16 12:20
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 13:20 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 13:20 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 13:20 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 13:20 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 13:20 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Styrene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/25/16 13:20 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 13:20 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 13:20 / kjw
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	07/25/16 13:20 / kjw
Surr: Dibromofluoromethane	94.0	%REC		77-126		SW8260B	07/25/16 13:20 / kjw
Surr: p-Bromofluorobenzene	98.0	%REC		76-127		SW8260B	07/25/16 13:20 / kjw
Surr: Toluene-d8	98.0	%REC		79-122		SW8260B	07/25/16 13:20 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-003
Client Sample ID: MW-9r

Report Date: 08/02/16
Collection Date: 07/21/16 13:50
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	07/22/16 15:26 / SRW
Conductivity @ 25 C	956	umhos/cm		1		A2510 B	07/22/16 15:26 / SRW
INORGANICS							
Chloride	11	mg/L		1		E300.0	07/25/16 12:08 / SRW
Sulfate	80	mg/L		1		E300.0	07/25/16 12:08 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.94	mg/L		0.01		E353.2	07/25/16 14:54 / cmm
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 15:03 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 15:03 / kjw
Benzene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
cis-1,2-Dichloroethene	2.4	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 15:03 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 15:03 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 15:03 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 15:03 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-003
Client Sample ID: MW-9r

Report Date: 08/02/16
Collection Date: 07/21/16 13:50
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 15:03 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Styrene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Tetrachloroethene	0.47	ug/L	J	0.50		SW8260B	07/25/16 15:03 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Trichloroethene	0.19	ug/L	J	0.50		SW8260B	07/25/16 15:03 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/25/16 15:03 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 15:03 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 15:03 / kjw
Surr: 1,2-Dichloroethane-d4	110	%REC		70-130		SW8260B	07/25/16 15:03 / kjw
Surr: Dibromofluoromethane	98.0	%REC		77-126		SW8260B	07/25/16 15:03 / kjw
Surr: p-Bromofluorobenzene	98.0	%REC		76-127		SW8260B	07/25/16 15:03 / kjw
Surr: Toluene-d8	92.0	%REC		79-122		SW8260B	07/25/16 15:03 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-004
Client Sample ID: MW-OW

Report Date: 08/02/16
Collection Date: 07/21/16 14:35
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	07/22/16 15:28 / SRW
Conductivity @ 25 C	617	umhos/cm		1		A2510 B	07/22/16 15:28 / SRW
INORGANICS							
Chloride	10	mg/L		1		E300.0	07/25/16 12:20 / SRW
Sulfate	ND	mg/L		1		E300.0	07/25/16 12:20 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/25/16 14:55 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	07/26/16 19:53 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/26/16 19:53 / dck
Barium	0.123	mg/L		0.003		E200.8	07/26/16 19:53 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/29/16 12:25 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/26/16 19:53 / dck
Chromium	ND	mg/L		0.01		E200.8	07/26/16 19:53 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/26/16 19:53 / dck
Copper	ND	mg/L		0.002		E200.8	07/26/16 19:53 / dck
Iron	ND	mg/L		0.02		E200.8	07/26/16 19:53 / dck
Lead	ND	mg/L		0.0003		E200.8	07/26/16 19:53 / dck
Nickel	ND	mg/L		0.002		E200.8	07/26/16 19:53 / dck
Selenium	ND	mg/L		0.001		E200.8	07/26/16 19:53 / dck
Silver	ND	mg/L		0.0002		E200.8	07/26/16 19:53 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/26/16 19:53 / dck
Vanadium	ND	mg/L		0.1		E200.8	07/26/16 19:53 / dck
Zinc	0.622	mg/L		0.008		E200.8	07/26/16 19:53 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 15:38 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 15:38 / kjw
Benzene	0.47	ug/L	J	0.50		SW8260B	07/25/16 15:38 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-004
Client Sample ID: MW-OW

Report Date: 08/02/16
Collection Date: 07/21/16 14:35
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
cis-1,2-Dichloroethene	9.6	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 15:38 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 15:38 / kjw
Ethylbenzene	0.057	ug/L	J	0.50		SW8260B	07/25/16 15:38 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 15:38 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 15:38 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 15:38 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Styrene	0.22	ug/L	J	0.50		SW8260B	07/25/16 15:38 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Trichloroethene	0.11	ug/L	J	0.50		SW8260B	07/25/16 15:38 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw
Vinyl chloride	0.30	ug/L	J	0.40		SW8260B	07/25/16 15:38 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 15:38 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 15:38 / kjw
Surr: 1,2-Dichloroethane-d4	115	%REC		70-130		SW8260B	07/25/16 15:38 / kjw
Surr: Dibromofluoromethane	97.0	%REC		77-126		SW8260B	07/25/16 15:38 / kjw
Surr: p-Bromofluorobenzene	94.0	%REC		76-127		SW8260B	07/25/16 15:38 / kjw
Surr: Toluene-d8	96.0	%REC		79-122		SW8260B	07/25/16 15:38 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-005
Client Sample ID: MW-HW

Report Date: 08/02/16
Collection Date: 07/21/16 15:00
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.9	s.u.	H	0.1		A4500-H B	07/22/16 15:30 / SRW
Conductivity @ 25 C	796	umhos/cm		1		A2510 B	07/22/16 15:30 / SRW
INORGANICS							
Chloride	6	mg/L		1		E300.0	07/25/16 12:31 / SRW
Sulfate	36	mg/L		1		E300.0	07/25/16 12:31 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	07/25/16 14:59 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		E200.8	07/26/16 19:56 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/26/16 19:56 / dck
Barium	0.071	mg/L		0.003		E200.8	07/26/16 19:56 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/29/16 12:29 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/26/16 19:56 / dck
Chromium	ND	mg/L		0.01		E200.8	07/26/16 19:56 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/26/16 19:56 / dck
Copper	ND	mg/L		0.002		E200.8	07/26/16 19:56 / dck
Iron	ND	mg/L		0.02		E200.8	07/26/16 19:56 / dck
Lead	ND	mg/L		0.0003		E200.8	07/26/16 19:56 / dck
Nickel	ND	mg/L		0.002		E200.8	07/26/16 19:56 / dck
Selenium	ND	mg/L		0.001		E200.8	07/29/16 12:29 / dck
Silver	ND	mg/L		0.0002		E200.8	07/26/16 19:56 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/26/16 19:56 / dck
Vanadium	ND	mg/L		0.1		E200.8	07/26/16 19:56 / dck
Zinc	0.019	mg/L		0.008		E200.8	07/26/16 19:56 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 13:55 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 13:55 / kjw
Benzene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-005
Client Sample ID: MW-HW

Report Date: 08/02/16
Collection Date: 07/21/16 15:00
DateReceived: 07/22/16
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 13:55 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 13:55 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 13:55 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 13:55 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 13:55 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Styrene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/25/16 13:55 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 13:55 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 13:55 / kjw
Surr: 1,2-Dichloroethane-d4	110	%REC		70-130		SW8260B	07/25/16 13:55 / kjw
Surr: Dibromofluoromethane	97.0	%REC		77-126		SW8260B	07/25/16 13:55 / kjw
Surr: p-Bromofluorobenzene	98.0	%REC		76-127		SW8260B	07/25/16 13:55 / kjw
Surr: Toluene-d8	94.0	%REC		79-122		SW8260B	07/25/16 13:55 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-006
Client Sample ID: TB5690

Report Date: 08/02/16
Collection Date: 07/21/16 11:25
DateReceived: 07/22/16
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/25/16 12:46 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/25/16 12:46 / kjw
Benzene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 12:46 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/25/16 12:46 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	07/25/16 12:46 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/25/16 12:46 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/25/16 12:46 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Styrene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Toluene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H16070406-006
Client Sample ID: TB5690

Report Date: 08/02/16
Collection Date: 07/21/16 11:25
DateReceived: 07/22/16
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/25/16 12:46 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/25/16 12:46 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/25/16 12:46 / kjw
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	07/25/16 12:46 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	07/25/16 12:46 / kjw
Surr: p-Bromofluorobenzene	107	%REC		76-127		SW8260B	07/25/16 12:46 / kjw
Surr: Toluene-d8	93.0	%REC		79-122		SW8260B	07/25/16 12:46 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-H_160722A	
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							07/22/16 15:07	
Conductivity @ 25 C		1420	umhos/cm	1.0	101	90	110			
Method: A2510 B									Batch: R117015	
Lab ID: SC 150		Initial Calibration Verification Standard				Run: PHSC_101-H_160722A			07/22/16 08:51	
Conductivity @ 25 C		156	umhos/cm	1.0	104	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard				Run: PHSC_101-H_160722A			07/22/16 08:54	
Conductivity @ 25 C		4950	umhos/cm	1.0	99	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard				Run: PHSC_101-H_160722A			07/22/16 08:56	
Conductivity @ 25 C		19700	umhos/cm	1.0	99	90	110			
Lab ID: SC 1000		Laboratory Control Sample				Run: PHSC_101-H_160722A			07/22/16 08:59	
Conductivity @ 25 C		1010	umhos/cm	1.0	101	90	110			
Lab ID: H16070406-001ADUP		Sample Duplicate				Run: PHSC_101-H_160722A			07/22/16 15:21	
Conductivity @ 25 C		715	umhos/cm	1.0				0.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: PHSC_101-H_160722A	
Lab ID: pH 7	Initial Calibration Verification Standard								07/22/16 08:49	
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: CCV - pH 7	Continuing Calibration Verification Standard								07/22/16 15:04	
pH		7.0	s.u.	0.1	100	98	102			
Method: A4500-H B									Batch: R117015	
Lab ID: H16070406-001ADUP	Sample Duplicate					Run: PHSC_101-H_160722A			07/22/16 15:21	
pH		7.3	s.u.	0.1				0.1	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_160726A	
Lab ID: ICV STD	15	Initial Calibration Verification Standard							07/26/16 11:30	
Antimony		0.0566	mg/L	0.050	94	90	110			
Arsenic		0.0585	mg/L	0.0050	97	90	110			
Barium		0.0576	mg/L	0.10	96	90	110			
Cadmium		0.0289	mg/L	0.0010	96	90	110			
Chromium		0.0581	mg/L	0.010	97	90	110			
Cobalt		0.0584	mg/L	0.010	97	90	110			
Copper		0.0594	mg/L	0.010	99	90	110			
Iron		0.293	mg/L	0.020	98	90	110			
Lead		0.0573	mg/L	0.010	96	90	110			
Nickel		0.0581	mg/L	0.010	97	90	110			
Selenium		0.0584	mg/L	0.0050	97	90	110			
Silver		0.0290	mg/L	0.0050	97	90	110			
Thallium		0.0574	mg/L	0.10	96	90	110			
Vanadium		0.0565	mg/L	0.10	94	90	110			
Zinc		0.0613	mg/L	0.010	102	90	110			
Lab ID: ICSA	15	Interference Check Sample A							07/26/16 11:33	
Antimony		0.000128	mg/L	0.050						
Arsenic		9.50E-05	mg/L	0.0050						
Barium		-2.20E-05	mg/L	0.10						
Cadmium		0.000768	mg/L	0.0010						
Chromium		0.00127	mg/L	0.010						
Cobalt		2.60E-05	mg/L	0.010						
Copper		0.000205	mg/L	0.010						
Iron		93.0	mg/L	0.020	93	70	130			
Lead		0.000245	mg/L	0.010						
Nickel		0.000166	mg/L	0.010						
Selenium		-2.00E-05	mg/L	0.0050						
Silver		7.20E-05	mg/L	0.0050						
Thallium		6.70E-05	mg/L	0.10						
Vanadium		-0.000274	mg/L	0.10						
Zinc		0.000396	mg/L	0.010						
Lab ID: ICV STD	15	Initial Calibration Verification Standard							07/26/16 15:36	
Antimony		0.0576	mg/L	0.050	96	90	110			
Arsenic		0.0589	mg/L	0.0050	98	90	110			
Barium		0.0592	mg/L	0.10	99	90	110			
Cadmium		0.0291	mg/L	0.0010	97	90	110			
Chromium		0.0593	mg/L	0.010	99	90	110			
Cobalt		0.0599	mg/L	0.010	100	90	110			
Copper		0.0605	mg/L	0.010	101	90	110			
Iron		0.298	mg/L	0.020	99	90	110			
Lead		0.0579	mg/L	0.010	97	90	110			
Nickel		0.0602	mg/L	0.010	100	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_160726A	
Lab ID: ICV STD	15	Initial Calibration Verification Standard							07/26/16 15:36	
Selenium		0.0598	mg/L	0.0050	100	90	110			
Silver		0.0293	mg/L	0.0050	98	90	110			
Thallium		0.0576	mg/L	0.10	96	90	110			
Vanadium		0.0577	mg/L	0.10	96	90	110			
Zinc		0.0601	mg/L	0.010	100	90	110			
Lab ID: ICSA	15	Interference Check Sample A							07/26/16 15:39	
Antimony		0.000211	mg/L	0.050						
Arsenic		-2.70E-05	mg/L	0.0050						
Barium		6.30E-05	mg/L	0.10						
Cadmium		0.000884	mg/L	0.0010						
Chromium		0.00129	mg/L	0.010						
Cobalt		5.60E-05	mg/L	0.010						
Copper		0.000393	mg/L	0.010						
Iron		96.7	mg/L	0.020	97	70	130			
Lead		0.000226	mg/L	0.010						
Nickel		0.000198	mg/L	0.010						
Selenium		0.000740	mg/L	0.0050						
Silver		0.000146	mg/L	0.0050						
Thallium		8.30E-05	mg/L	0.10						
Vanadium		-0.000612	mg/L	0.10						
Zinc		0.000226	mg/L	0.010						
Method: E200.8									Batch: R117132	
Lab ID: LRB	15	Method Blank				Run: ICPMS204-B_160726A			07/26/16 11:59	
Antimony		ND	mg/L	3E-05						
Arsenic		ND	mg/L	6E-05						
Barium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	1E-05						
Chromium		ND	mg/L	3E-05						
Cobalt		ND	mg/L	2E-05						
Copper		ND	mg/L	6E-05						
Iron		0.002	mg/L	0.0002						
Lead		ND	mg/L	5E-06						
Nickel		ND	mg/L	4E-05						
Selenium		ND	mg/L	0.0003						
Silver		ND	mg/L	9E-06						
Thallium		ND	mg/L	5E-06						
Vanadium		ND	mg/L	0.0001						
Zinc		ND	mg/L	0.0002						
Lab ID: LFB	15	Laboratory Fortified Blank				Run: ICPMS204-B_160726A			07/26/16 12:02	
Antimony		0.0467	mg/L	0.050	93	85	115			
Arsenic		0.0483	mg/L	0.0050	97	85	115			
Barium		0.0478	mg/L	0.10	96	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R117132
Lab ID: LFB	15	Laboratory Fortified Blank				Run: ICPMS204-B_160726A				07/26/16 12:02
Cadmium		0.0488	mg/L	0.0010	98	85	115			
Chromium		0.0495	mg/L	0.010	99	85	115			
Cobalt		0.0498	mg/L	0.010	100	85	115			
Copper		0.0504	mg/L	0.010	101	85	115			
Iron		0.152	mg/L	0.020	100	85	115			
Lead		0.0475	mg/L	0.010	95	85	115			
Nickel		0.0498	mg/L	0.010	100	85	115			
Selenium		0.0492	mg/L	0.0050	98	85	115			
Silver		0.0192	mg/L	0.0050	96	85	115			
Thallium		0.0478	mg/L	0.10	96	85	115			
Vanadium		0.0477	mg/L	0.10	95	85	115			
Zinc		0.0505	mg/L	0.010	101	85	115			
Lab ID: H16070419-020CMS	15	Sample Matrix Spike				Run: ICPMS204-B_160726A				07/26/16 19:01
Antimony		0.0472	mg/L	0.0010	94	70	130			
Arsenic		0.0609	mg/L	0.0010	105	70	130			
Barium		0.0822	mg/L	0.050	97	70	130			
Cadmium		0.0486	mg/L	0.0010	97	70	130			
Chromium		0.0478	mg/L	0.0050	96	70	130			
Cobalt		0.0477	mg/L	0.0050	95	70	130			
Copper		0.0486	mg/L	0.0050	96	70	130			
Iron		0.155	mg/L	0.020	94	70	130			
Lead		0.0475	mg/L	0.0010	95	70	130			
Nickel		0.0479	mg/L	0.0050	95	70	130			
Selenium		0.0569	mg/L	0.0010	111	70	130			
Silver		0.0168	mg/L	0.0010	84	70	130			
Thallium		0.0481	mg/L	0.00050	96	70	130			
Vanadium		0.0502	mg/L	0.010	95	70	130			
Zinc		0.0494	mg/L	0.010	98	70	130			
Lab ID: H16070419-020CMSD	15	Sample Matrix Spike Duplicate				Run: ICPMS204-B_160726A				07/26/16 19:04
Antimony		0.0474	mg/L	0.0010	95	70	130	0.4	20	
Arsenic		0.0604	mg/L	0.0010	104	70	130	0.9	20	
Barium		0.0801	mg/L	0.050	93	70	130	2.5	20	
Cadmium		0.0469	mg/L	0.0010	94	70	130	3.5	20	
Chromium		0.0468	mg/L	0.0050	94	70	130	2.2	20	
Cobalt		0.0465	mg/L	0.0050	93	70	130	2.5	20	
Copper		0.0478	mg/L	0.0050	95	70	130	1.6	20	
Iron		0.153	mg/L	0.020	93	70	130	1.2	20	
Lead		0.0464	mg/L	0.0010	93	70	130	2.4	20	
Nickel		0.0465	mg/L	0.0050	92	70	130	2.9	20	
Selenium		0.0574	mg/L	0.0010	112	70	130	0.8	20	
Silver		0.0179	mg/L	0.0010	89	70	130	6.0	20	
Thallium		0.0466	mg/L	0.00050	93	70	130	3.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R117132
Lab ID: H16070419-020CMSD	15	Sample Matrix Spike Duplicate				Run: ICPMS204-B_160726A				07/26/16 19:04
Vanadium		0.0493	mg/L	0.010	93	70	130	1.9	20	
Zinc		0.0483	mg/L	0.010	96	70	130	2.3	20	
Method: E200.8										Analytical Run: ICPMS204-B_160729A
Lab ID: ICV STD	2	Initial Calibration Verification Standard								07/29/16 10:20
Beryllium		0.0307	mg/L	0.0010	102	90	110			
Selenium		0.0621	mg/L	0.0050	103	90	110			
Lab ID: ICSA	2	Interference Check Sample A								07/29/16 10:24
Beryllium		2.00E-06	mg/L	0.0010						
Selenium		0.000429	mg/L	0.0050						
Lab ID: ICV STD	2	Initial Calibration Verification Standard								07/29/16 13:51
Beryllium		0.0313	mg/L	0.0010	104	90	110			
Selenium		0.0613	mg/L	0.0050	102	90	110			
Lab ID: ICSA	2	Interference Check Sample A								07/29/16 13:54
Beryllium		3.80E-05	mg/L	0.0010						
Selenium		0.000386	mg/L	0.0050						
Method: E200.8										Batch: R117220
Lab ID: LRB	2	Method Blank				Run: ICPMS204-B_160729A				07/29/16 11:13
Beryllium		ND	mg/L	5E-05						
Selenium		ND	mg/L	4E-05						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: ICPMS204-B_160729A				07/29/16 11:16
Beryllium		0.0477	mg/L	0.0010	95	85	115			
Selenium		0.0499	mg/L	0.0050	100	85	115			
Lab ID: H16070514-001BMS	2	Sample Matrix Spike				Run: ICPMS204-B_160729A				07/29/16 11:26
Beryllium		0.0450	mg/L	0.0010	90	70	130			
Selenium		0.0711	mg/L	0.0010	110	70	130			
Lab ID: H16070514-001BMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS204-B_160729A				07/29/16 11:29
Beryllium		0.0434	mg/L	0.0010	87	70	130	3.8	20	
Selenium		0.0689	mg/L	0.0010	106	70	130	3.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_160725A	
Lab ID: ICV	2	Initial Calibration Verification Standard							07/25/16 10:06	
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		412	mg/L	1.0	103	90	110			
Lab ID: CCV072516-1	2	Continuing Calibration Verification Standard							07/25/16 10:28	
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		408	mg/L	1.0	102	90	110			
Method: E300.0									Batch: R117092	
Lab ID: ICB	2	Method Blank				Run: IC102-H_160725A			07/25/16 09:55	
Chloride		0.008	mg/L	0.006						
Sulfate		ND	mg/L	0.05						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC102-H_160725A			07/25/16 10:17	
Chloride		47.2	mg/L	1.0	94	90	110			
Sulfate		208	mg/L	1.0	104	90	110			
Lab ID: H16070406-005AMS	2	Sample Matrix Spike				Run: IC102-H_160725A			07/25/16 12:42	
Chloride		55.0	mg/L	1.0	98	90	110			
Sulfate		246	mg/L	1.0	105	90	110			
Lab ID: H16070406-005AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_160725A			07/25/16 12:53	
Chloride		55.3	mg/L	1.0	99	90	110	0.7	20	
Sulfate		249	mg/L	1.0	107	90	110	1.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 08/02/16
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-HE_160725A	
Lab ID: ICV		Initial Calibration Verification Standard							07/25/16 13:48	
Nitrogen, Nitrate+Nitrite as N		0.898	mg/L	0.010	90	90	110			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank							07/25/16 13:49	
Nitrogen, Nitrate+Nitrite as N		0.000715	mg/L	0.010		0	0			
Lab ID: CCV		Continuing Calibration Verification Standard							07/25/16 14:41	
Nitrogen, Nitrate+Nitrite as N		0.512	mg/L	0.010	102	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard							07/25/16 14:57	
Nitrogen, Nitrate+Nitrite as N		0.517	mg/L	0.010	103	90	110			
Method: E353.2									Batch: R117086	
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-HE_160725A			07/25/16 13:50	
Nitrogen, Nitrate+Nitrite as N		1.000	mg/L	0.011	100	90	110			
Lab ID: H16070400-002DMS		Sample Matrix Spike				Run: FIA203-HE_160725A			07/25/16 14:43	
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	100	90	110			
Lab ID: H16070400-002DMSD		Sample Matrix Spike Duplicate				Run: FIA203-HE_160725A			07/25/16 14:44	
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	102	90	110	1.8	20	
Lab ID: H16070406-005CMS		Sample Matrix Spike				Run: FIA203-HE_160725A			07/25/16 15:00	
Nitrogen, Nitrate+Nitrite as N		1.05	mg/L	0.011	101	90	110			
Lab ID: H16070406-005CMSD		Sample Matrix Spike Duplicate				Run: FIA203-HE_160725A			07/25/16 15:01	
Nitrogen, Nitrate+Nitrite as N		1.05	mg/L	0.011	101	90	110	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R117061	
Lab ID: 072516_CCV_4	54	Continuing Calibration Verification Standard							07/25/16 11:00	
trans-1,4-Dichloro-2-butene		4.00	ug/L	0.50	80	70	130			
Acetone		42.8	ug/L	10	86	70	130			
Acrylonitrile		46.0	ug/L	20	92	70	130			
Benzene		4.92	ug/L	0.50	98	70	130			
Bromochloromethane		4.20	ug/L	0.50	84	70	130			
Bromodichloromethane		5.00	ug/L	0.50	100	70	130			
Bromoform		4.68	ug/L	0.50	94	70	130			
Bromomethane		4.44	ug/L	0.50	89	70	130			
Carbon disulfide		5.04	ug/L	0.50	101	70	130			
Carbon tetrachloride		4.48	ug/L	0.50	90	70	130			
Chlorobenzene		5.76	ug/L	0.50	115	70	130			
Chlorodibromomethane		4.88	ug/L	0.50	98	70	130			
Chloroethane		4.24	ug/L	0.50	85	70	130			
Chloroform		4.48	ug/L	0.50	90	80	120			
Chloromethane		4.96	ug/L	0.50	99	70	130			
1,2-Dibromo-3-chloropropane		4.44	ug/L	0.50	89	70	130			
1,2-Dibromoethane		5.12	ug/L	0.50	102	70	130			
Dibromomethane		5.04	ug/L	0.50	101	70	130			
1,2-Dichlorobenzene		4.96	ug/L	0.50	99	70	130			
1,4-Dichlorobenzene		4.60	ug/L	0.50	92	70	130			
Dichlorodifluoromethane		4.88	ug/L	0.50	98	70	130			
1,1-Dichloroethane		4.44	ug/L	0.50	89	70	130			
1,2-Dichloroethane		4.16	ug/L	0.50	83	70	130			
1,1-Dichloroethene		4.88	ug/L	0.50	98	80	120			
cis-1,2-Dichloroethene		4.52	ug/L	0.50	90	70	130			
trans-1,2-Dichloroethene		5.08	ug/L	0.50	102	70	130			
1,2-Dichloropropane		4.72	ug/L	0.50	94	80	120			
cis-1,3-Dichloropropene		5.28	ug/L	0.50	106	70	130			
trans-1,3-Dichloropropene		4.96	ug/L	0.50	99	70	130			
Ethylbenzene		5.16	ug/L	0.50	103	80	120			
2-Hexanone		45.2	ug/L	10	90	70	130			
Iodomethane		5.00	ug/L	0.50	100	70	130			
Methyl ethyl ketone		44.4	ug/L	10	89	70	130			
Methyl isobutyl ketone		53.6	ug/L	10	107	70	130			
Methylene chloride		3.77	ug/L	0.50	75	70	130			
Styrene		4.96	ug/L	0.50	99	70	130			
1,1,1,2-Tetrachloroethane		5.32	ug/L	0.50	106	70	130			
1,1,2,2-Tetrachloroethane		4.88	ug/L	0.50	98	70	130			
Tetrachloroethene		5.20	ug/L	0.50	104	70	130			
Toluene		5.12	ug/L	0.50	102	80	120			
1,1,1-Trichloroethane		4.72	ug/L	0.50	94	70	130			
1,1,2-Trichloroethane		4.84	ug/L	0.50	97	70	130			
Trichloroethene		4.92	ug/L	0.50	98	70	130			
Trichlorofluoromethane		4.52	ug/L	0.50	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R117061	
Lab ID: 072516_CCV_4	54	Continuing Calibration Verification Standard							07/25/16 11:00	
1,2,3-Trichloropropane		5.52	ug/L	0.50	110	70	130			
Vinyl acetate		4.08	ug/L	0.50	82	70	130			
Vinyl chloride		4.80	ug/L	0.50	96	80	120			
m+p-Xylenes		10.5	ug/L	0.50	105	70	130			
o-Xylene		5.52	ug/L	0.50	110	70	130			
Xylenes, Total		16.0	ug/L	0.50	107	70	130			
Surr: 1,2-Dichloroethane-d4				1.0	97	69	131			
Surr: Dibromofluoromethane				1.0	101	70	125			
Surr: p-Bromofluorobenzene				1.0	94	76	123			
Surr: Toluene-d8				1.0	103	80	119			
Method: SW8260B									Batch: R117061	
Lab ID: 072516_LCS_5	54	Laboratory Control Sample				Run: 1SATURN_160725A			07/25/16 11:40	
trans-1,4-Dichloro-2-butene		4.16	ug/L	0.50	83	67	132			
Acetone		38.2	ug/L	10	76	55	144			
Acrylonitrile		44.4	ug/L	20	89	63	134			
Benzene		4.88	ug/L	0.50	98	69	129			
Bromochloromethane		3.85	ug/L	0.50	77	72	125			
Bromodichloromethane		4.60	ug/L	0.50	92	71	122			
Bromoform		3.51	ug/L	0.50	70	65	130			
Bromomethane		5.40	ug/L	0.50	108	60	136			
Carbon disulfide		4.60	ug/L	0.50	92	71	135			
Carbon tetrachloride		4.40	ug/L	0.50	88	77	121			
Chlorobenzene		5.56	ug/L	0.50	111	78	120			
Chlorodibromomethane		4.64	ug/L	0.50	93	70	122			
Chloroethane		3.89	ug/L	0.50	78	62	135			
Chloroform		4.04	ug/L	0.50	81	71	121			
Chloromethane		5.88	ug/L	0.50	118	66	139			
1,2-Dibromo-3-chloropropane		4.40	ug/L	0.50	88	59	130			
1,2-Dibromoethane		5.00	ug/L	0.50	100	60	137			
Dibromomethane		5.00	ug/L	0.50	100	69	122			
1,2-Dichlorobenzene		4.68	ug/L	0.50	94	74	122			
1,4-Dichlorobenzene		4.12	ug/L	0.50	82	75	122			
Dichlorodifluoromethane		5.16	ug/L	0.50	103	57	144			
1,1-Dichloroethane		3.91	ug/L	0.50	78	76	125			
1,2-Dichloroethane		3.94	ug/L	0.50	79	69	131			
1,1-Dichloroethene		4.24	ug/L	0.50	85	67	129			
cis-1,2-Dichloroethene		4.20	ug/L	0.50	84	75	122			
trans-1,2-Dichloroethene		4.44	ug/L	0.50	89	75	124			
1,2-Dichloropropane		4.36	ug/L	0.50	87	75	127			
cis-1,3-Dichloropropene		5.04	ug/L	0.50	101	73	124			
trans-1,3-Dichloropropene		4.28	ug/L	0.50	86	72	127			
Ethylbenzene		5.12	ug/L	0.50	102	74	125			
2-Hexanone		45.2	ug/L	10	90	70	128			

Qualifiers:

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ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R117061	
Lab ID: 072516_LCS_5	54	Laboratory Control Sample				Run: 1SATURN_160725A			07/25/16 11:40	
Iodomethane		4.56	ug/L	0.50	91	52	130			
Methyl ethyl ketone		40.4	ug/L	10	81	56	141			
Methyl isobutyl ketone		48.8	ug/L	10	98	71	121			
Methylene chloride		3.40	ug/L	0.50	68	61	125			
Styrene		4.60	ug/L	0.50	92	75	120			
1,1,1,2-Tetrachloroethane		5.00	ug/L	0.50	100	76	122			
1,1,2,2-Tetrachloroethane		4.32	ug/L	0.50	86	67	124			
Tetrachloroethene		4.76	ug/L	0.50	95	75	126			
Toluene		4.92	ug/L	0.50	98	73	122			
1,1,1-Trichloroethane		4.76	ug/L	0.50	95	76	124			
1,1,2-Trichloroethane		4.60	ug/L	0.50	92	72	125			
Trichloroethene		4.84	ug/L	0.50	97	72	126			
Trichlorofluoromethane		4.88	ug/L	0.50	98	73	131			
1,2,3-Trichloropropane		4.68	ug/L	0.50	94	58	142			
Vinyl acetate		5.36	ug/L	0.50	107	47	154			
Vinyl chloride		5.04	ug/L	0.50	101	69	129			
m+p-Xylenes		10.2	ug/L	0.50	102	72	124			
o-Xylene		5.40	ug/L	0.50	108	74	123			
Xylenes, Total		15.6	ug/L	0.50	104	72	124			
Surr: 1,2-Dichloroethane-d4				1.0	94	69	131			
Surr: Dibromofluoromethane				1.0	96	70	125			
Surr: p-Bromofluorobenzene				1.0	91	76	123			
Surr: Toluene-d8				1.0	105	80	119			
Lab ID: 072516_MBLK_6	54	Method Blank				Run: 1SATURN_160725A			07/25/16 12:14	
trans-1,4-Dichloro-2-butene		ND	ug/L	0.50						
Acetone		ND	ug/L	10						
Acrylonitrile		ND	ug/L	20						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	0.50						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R117061
Lab ID: 072516_MBLK_6	54	Method Blank				Run: 1SATURN_160725A				07/25/16 12:14
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.50						
trans-1,3-Dichloropropene		ND	ug/L	0.50						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	10						
Iodomethane		ND	ug/L	0.50						
Methyl ethyl ketone		ND	ug/L	10						
Methyl isobutyl ketone		ND	ug/L	10						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.50						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	0.50						
Vinyl chloride		ND	ug/L	0.50						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Xylenes, Total		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				1.0	96	69	131			
Surr: Dibromofluoromethane				1.0	98	70	125			
Surr: p-Bromofluorobenzene				1.0	112	76	123			
Surr: Toluene-d8				1.0	94	80	119			
Lab ID: H16070406-004DMS	54	Sample Matrix Spike				Run: 1SATURN_160725A				07/25/16 16:22
trans-1,4-Dichloro-2-butene		7.89	ug/L	1.0	79	67	132			
Acetone		84.0	ug/L	20	84	55	144			
Acrylonitrile		100	ug/L	40	100	63	134			
Benzene		10.4	ug/L	1.0	99	69	129			
Bromochloromethane		7.81	ug/L	1.0	78	72	125			
Bromodichloromethane		10.1	ug/L	1.0	101	71	122			
Bromoform		8.80	ug/L	1.0	88	65	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R117061
Lab ID: H16070406-004DMS	54	Sample Matrix Spike				Run: 1SATURN_160725A				07/25/16 16:22
Bromomethane		10.9	ug/L	1.0	109	60	136			
Carbon disulfide		9.28	ug/L	1.0	93	71	135			
Carbon tetrachloride		8.48	ug/L	1.0	85	77	121			
Chlorobenzene		11.7	ug/L	1.0	117	78	120			
Chlorodibromomethane		10.1	ug/L	1.0	101	70	122			
Chloroethane		7.95	ug/L	1.0	80	62	135			
Chloroform		8.56	ug/L	1.0	86	71	121			
Chloromethane		10.7	ug/L	1.0	107	66	139			
1,2-Dibromo-3-chloropropane		8.96	ug/L	1.0	90	59	130			
1,2-Dibromoethane		10.8	ug/L	1.0	108	60	137			
Dibromomethane		10.7	ug/L	1.0	107	69	122			
1,2-Dichlorobenzene		9.44	ug/L	1.0	94	74	122			
1,4-Dichlorobenzene		8.40	ug/L	1.0	84	75	122			
Dichlorodifluoromethane		9.60	ug/L	1.0	96	57	144			
1,1-Dichloroethane		8.56	ug/L	1.0	86	76	125			
1,2-Dichloroethane		8.88	ug/L	1.0	89	69	131			
1,1-Dichloroethene		8.64	ug/L	1.0	86	67	129			
cis-1,2-Dichloroethene		19.5	ug/L	1.0	99	75	122			
trans-1,2-Dichloroethene		9.44	ug/L	1.0	94	75	124			
1,2-Dichloropropane		9.28	ug/L	1.0	93	75	127			
cis-1,3-Dichloropropene		10.5	ug/L	1.0	105	73	124			
trans-1,3-Dichloropropene		9.52	ug/L	1.0	95	72	127			
Ethylbenzene		10.9	ug/L	1.0	108	74	125			
2-Hexanone		105	ug/L	20	105	70	128			
Iodomethane		8.96	ug/L	1.0	90	52	130			
Methyl ethyl ketone		97.6	ug/L	20	98	56	141			
Methyl isobutyl ketone		107	ug/L	20	107	71	121			
Methylene chloride		7.78	ug/L	1.0	78	61	125			
Styrene		11.2	ug/L	1.0	110	75	120			
1,1,1,2-Tetrachloroethane		10.9	ug/L	1.0	109	76	122			
1,1,2,2-Tetrachloroethane		9.04	ug/L	1.0	90	67	124			
Tetrachloroethene		10.3	ug/L	1.0	103	75	126			
Toluene		10.2	ug/L	1.0	102	73	122			
1,1,1-Trichloroethane		9.92	ug/L	1.0	99	76	124			
1,1,2-Trichloroethane		9.76	ug/L	1.0	98	72	125			
Trichloroethene		9.92	ug/L	1.0	98	72	126			
Trichlorofluoromethane		8.80	ug/L	1.0	88	73	131			
1,2,3-Trichloropropane		9.60	ug/L	1.0	96	58	142			
Vinyl acetate		12.0	ug/L	1.0	120	47	154			
Vinyl chloride		9.52	ug/L	1.0	92	69	129			
m+p-Xylenes		20.8	ug/L	1.0	104	72	124			
o-Xylene		11.2	ug/L	1.0	112	74	123			
Xylenes, Total		32.0	ug/L	1.0	107	72	124			
Surr: 1,2-Dichloroethane-d4				2.0	109	69	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R117061	
Lab ID: H16070406-004DMS	54	Sample Matrix Spike				Run: 1SATURN_160725A			07/25/16 16:22	
Surr: Dibromofluoromethane				2.0	95	70	125			
Surr: p-Bromofluorobenzene				2.0	89	76	123			
Surr: Toluene-d8				2.0	109	80	119			
Lab ID: H16070406-004DMSD	54	Sample Matrix Spike Duplicate				Run: 1SATURN_160725A			07/25/16 16:57	
trans-1,4-Dichloro-2-butene		8.96	ug/L	1.0	90	67	132	13	20	
Acetone		92.0	ug/L	20	92	55	144	9.1	20	
Acrylonitrile		114	ug/L	40	114	63	134	13	20	
Benzene		10.1	ug/L	1.0	96	69	129	3.1	20	
Bromochloromethane		8.08	ug/L	1.0	81	72	125	3.4	20	
Bromodichloromethane		10.4	ug/L	1.0	104	71	122	3.1	20	
Bromoform		9.04	ug/L	1.0	90	65	130	2.7	20	
Bromomethane		11.0	ug/L	1.0	110	60	136	1.5	20	
Carbon disulfide		9.60	ug/L	1.0	96	71	135	3.4	20	
Carbon tetrachloride		8.64	ug/L	1.0	86	77	121	1.9	20	
Chlorobenzene		11.2	ug/L	1.0	112	78	120	4.2	20	
Chlorodibromomethane		9.76	ug/L	1.0	98	70	122	3.2	20	
Chloroethane		8.64	ug/L	1.0	86	62	135	8.3	20	
Chloroform		8.64	ug/L	1.0	86	71	121	0.9	20	
Chloromethane		11.2	ug/L	1.0	112	66	139	4.4	20	
1,2-Dibromo-3-chloropropane		8.80	ug/L	1.0	88	59	130	1.8	20	
1,2-Dibromoethane		11.0	ug/L	1.0	110	60	137	2.2	20	
Dibromomethane		10.6	ug/L	1.0	106	69	122	1.5	20	
1,2-Dichlorobenzene		10.0	ug/L	1.0	100	74	122	5.8	20	
1,4-Dichlorobenzene		8.72	ug/L	1.0	87	75	122	3.7	20	
Dichlorodifluoromethane		10.2	ug/L	1.0	102	57	144	5.7	20	
1,1-Dichloroethane		8.64	ug/L	1.0	86	76	125	0.9	20	
1,2-Dichloroethane		8.96	ug/L	1.0	90	69	131	0.9	20	
1,1-Dichloroethene		8.40	ug/L	1.0	84	67	129	2.8	20	
cis-1,2-Dichloroethene		18.2	ug/L	1.0	86	75	122	7.2	20	
trans-1,2-Dichloroethene		9.36	ug/L	1.0	94	75	124	0.9	20	
1,2-Dichloropropane		9.84	ug/L	1.0	98	75	127	5.9	20	
cis-1,3-Dichloropropene		10.3	ug/L	1.0	103	73	124	1.5	20	
trans-1,3-Dichloropropene		9.84	ug/L	1.0	98	72	127	3.3	20	
Ethylbenzene		10.3	ug/L	1.0	103	74	125	5.3	20	
2-Hexanone		118	ug/L	20	118	70	128	12	20	
Iodomethane		9.04	ug/L	1.0	90	52	130	0.9	20	
Methyl ethyl ketone		105	ug/L	20	105	56	141	7.1	20	
Methyl isobutyl ketone		118	ug/L	20	118	71	121	9.9	20	
Methylene chloride		7.97	ug/L	1.0	80	61	125	2.3	20	
Styrene		11.1	ug/L	1.0	109	75	120	0.7	20	
1,1,1,2-Tetrachloroethane		11.0	ug/L	1.0	110	76	122	1.5	20	
1,1,2,2-Tetrachloroethane		9.68	ug/L	1.0	97	67	124	6.8	20	
Tetrachloroethene		10.2	ug/L	1.0	102	75	126	1.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 08/02/16
Project: Mister M Landfill
Work Order: H16070406

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R117061	
Lab ID: H16070406-004DMSD	54	Sample Matrix Spike Duplicate				Run: 1SATURN_160725A			07/25/16 16:57	
Toluene		9.92	ug/L	1.0	99	73	122	3.2	20	
1,1,1-Trichloroethane		9.84	ug/L	1.0	98	76	124	0.8	20	
1,1,2-Trichloroethane		10.1	ug/L	1.0	101	72	125	3.2	20	
Trichloroethene		9.60	ug/L	1.0	95	72	126	3.3	20	
Trichlorofluoromethane		9.52	ug/L	1.0	95	73	131	7.9	20	
1,2,3-Trichloropropane		10.7	ug/L	1.0	107	58	142	11	20	
Vinyl acetate		13.0	ug/L	1.0	130	47	154	7.7	20	
Vinyl chloride		10.0	ug/L	1.0	97	69	129	4.9	20	
m+p-Xylenes		20.5	ug/L	1.0	102	72	124	1.6	20	
o-Xylene		10.8	ug/L	1.0	108	74	123	3.6	20	
Xylenes, Total		31.3	ug/L	1.0	104	72	124	2.3	20	
Surr: 1,2-Dichloroethane-d4				2.0	111	69	131			
Surr: Dibromofluoromethane				2.0	98	70	125			
Surr: p-Bromofluorobenzene				2.0	88	76	123			
Surr: Toluene-d8				2.0	104	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT-DEQ Solid Waste Section

H16070406

Login completed by: Wanda Johnson
Date Received: 7/22/2016

Reviewed by: BL2000\sdull
Received by: TLL

Reviewed Date: 7/26/2016
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.3°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	Not Applicable ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Samples 001, 002, 004 and 005 for Dissolved Metals were subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. wj 7/22/16

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Montana DEQ	Mister M Landfill	State: MT	Yes ☑ No ☐
Report Mail Address (Required):	**Contact Name:** / **Phone/Fax:**	**Cell:**	**Sampler: (Please Print)**
	John Collins 444-2502		John Collins
☑ No Hard Copy Email: jcollins3@mt.gov	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**
Invoice Address (Required):			
☑ No Hard Copy Email:			

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____ ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other DW - Drinking Water

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	metals as requested	ph, specific cond, SO4	Nitrate+Nitrite as N	VOC's 8260	SEE ATTACHED
1 mw-12	7-21-16	11:35	GW	✓	✓	✓	✓	
2 mw-11	7-21-16	12:30	GW	✓	✓	✓	✓	
3 mw-9r	7-21-16	13:50	GW	20 ✓	✓	✓	✓	
4 mw-ow	7-21-16	14:35	GW	✓	✓	✓	✓	
5 mw-HW	7-21-16	15:00	GW	✓	✓	✓	✓	
6								
7								
8								
9								
10								

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

LABORATORY USE ONLY

Shipped by: hand

Cooler ID(s): Y

Receipt Temp: 2.3 °C TB

On Ice: (Y) N

Custody Seal: On Bottle Y (N) / On Cooler Y (N)

Intact: Y N

Signature Match: Y N

#1607040

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
John Collins	7/22/16 13:35				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: ✓

Received by Laboratory: Tracy Lord **Date/Time:** 7/22/16 13:35 **Signature:** Tracy Lord

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

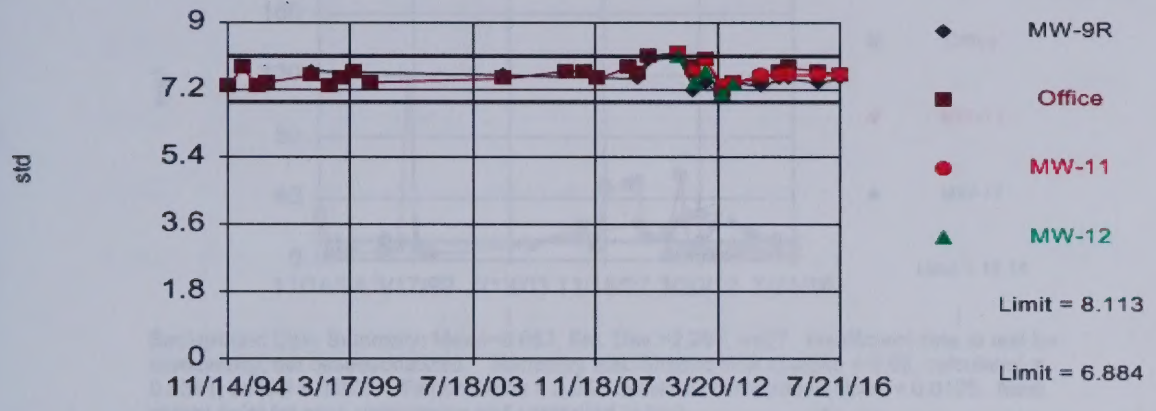
Figure F-1: Prediction Limit Analysis for pH

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.499, Std. Dev.=0.2248, n=27. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9723, critical = 0.923. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 8/9/2016 8:14 AM

Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

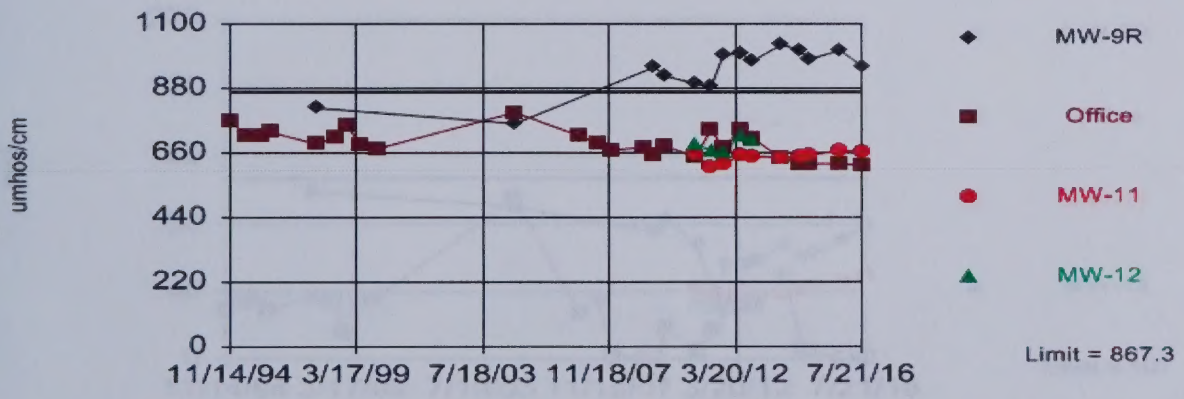
Figure F-2: Prediction Limit Analysis for Conductivity

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=769.5, Std. Dev.=40.35, n=27. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9506, critical = 0.923. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 8/9/2016 8:15 AM

Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

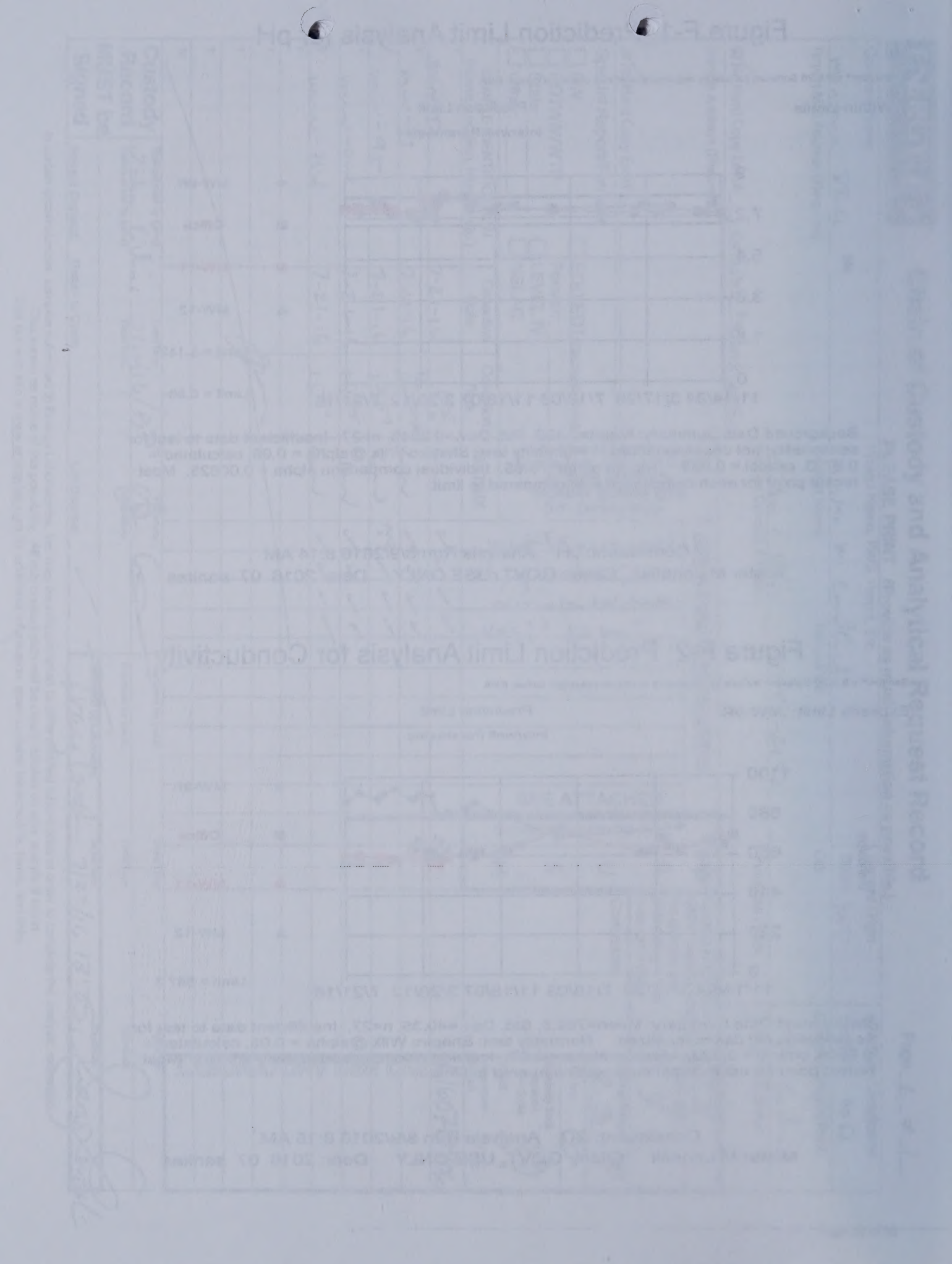


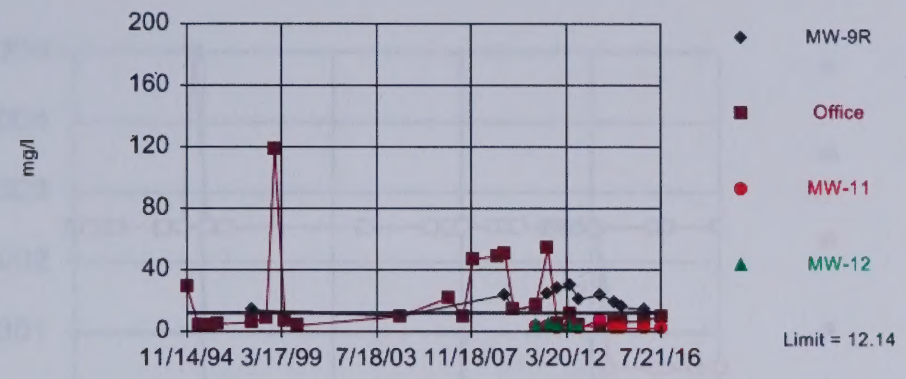
Figure F-3: Prediction Limit Analysis for Chloride

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.667, Std. Dev.=2.257, n=27. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9341, critical = 0.923. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 8/9/2016 8:23 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

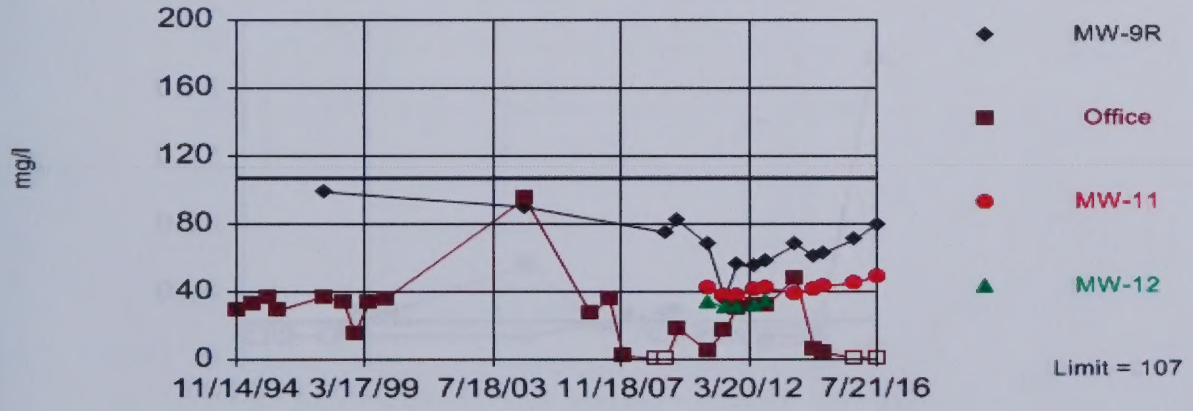
Figure F-4: Prediction Limit Analysis for Sulfate

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 27 background values. Report alpha = 0.129. Individual comparison alpha = 0.03395. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 8/9/2016 8:17 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

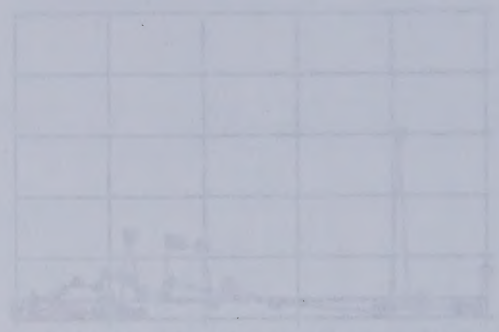


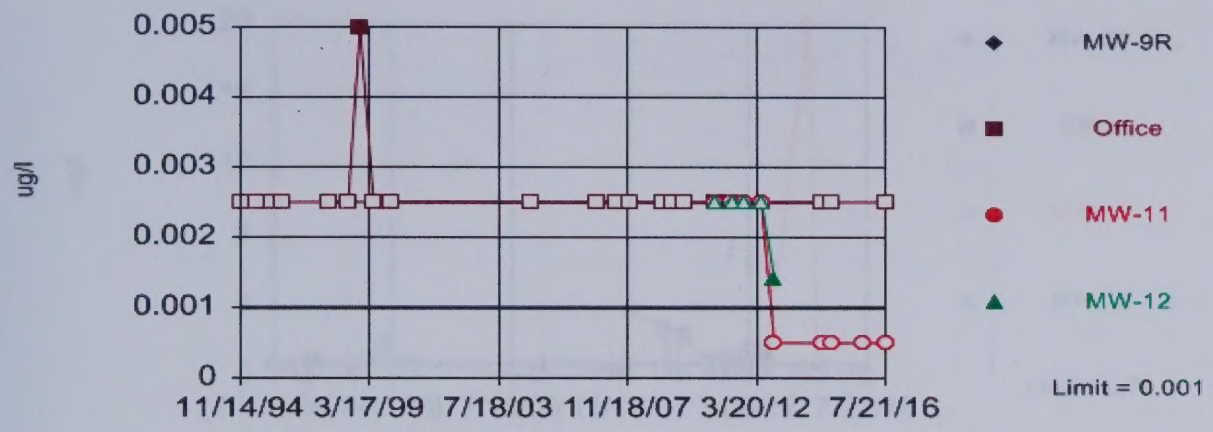
Figure F-5: Prediction Limit Analysis for Arsenic

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 26) were censored; limit is most recent reporting limit. Report alpha = 0.1333. Individual comparison alpha = 0.03514. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Arsenic Analysis Run 8/9/2016 8:26 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

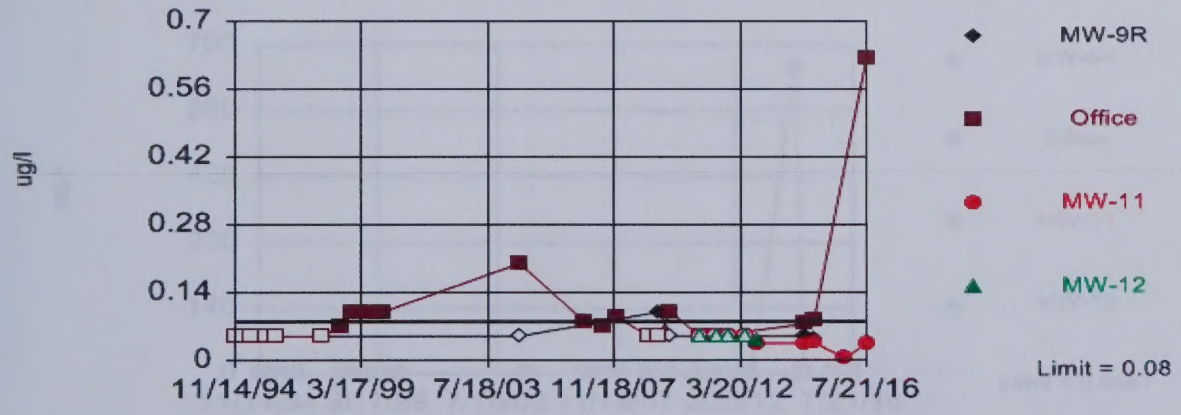
Figure F-6: Prediction Limit Analysis for Barium

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 26 background values. 61.54% NDs. Report alpha = 0.1333. Individual comparison alpha = 0.03514. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Barium Analysis Run 8/9/2016 8:27 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

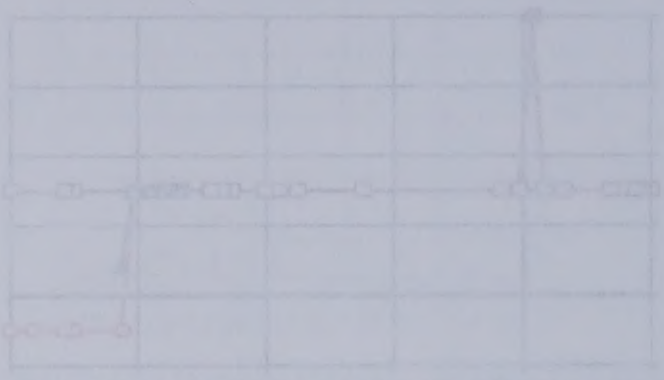


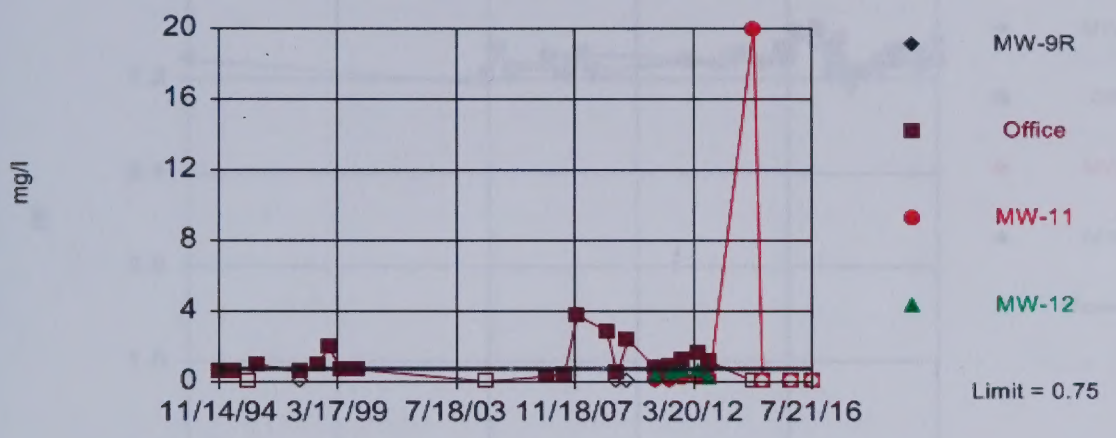
Figure F-7: Prediction Limit Analysis for Iron

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 27 background values. 74.07% NDs. Report alpha = 0.129. Individual comparison alpha = 0.03395. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Iron Analysis Run 8/9/2016 8:30 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

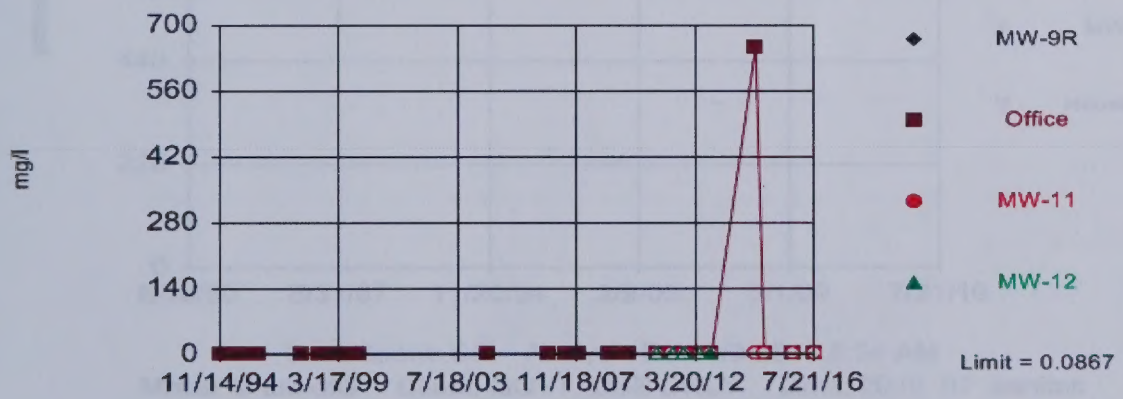
Figure F-8: Prediction Limit Analysis for Zinc

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office

Prediction Limit

Interwell Parametric



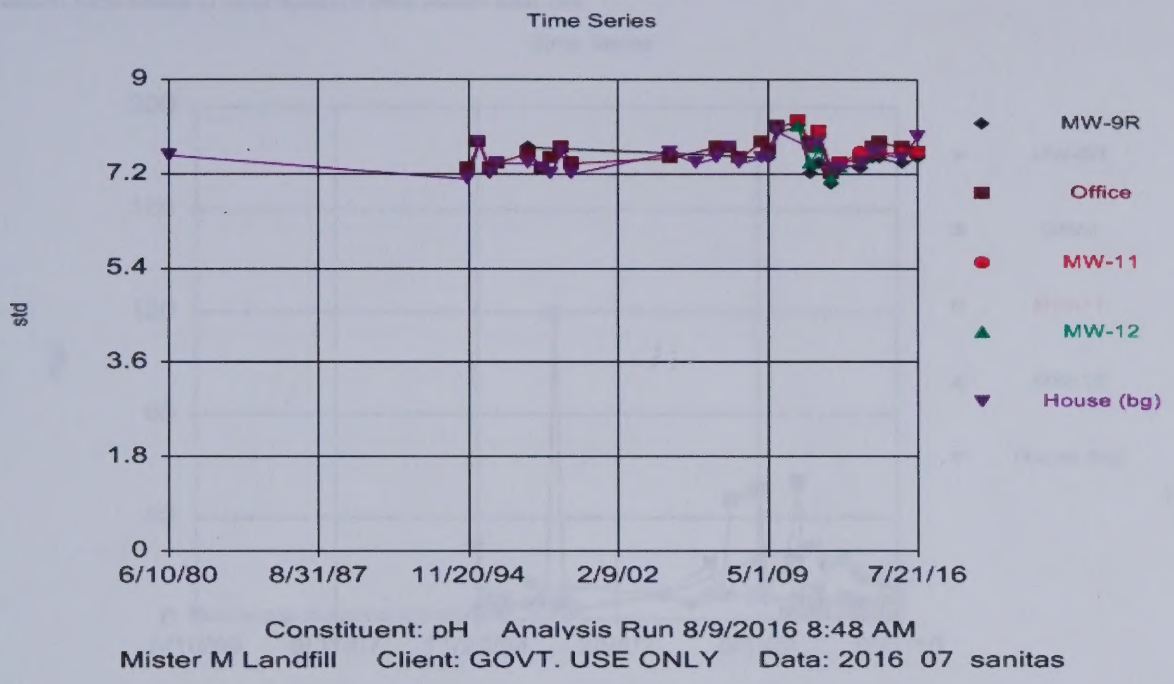
Background Data Summary (based on square root transformation): Mean=0.1723, Std. Dev.=0.05041, n=27, 3.704% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9548, critical = 0.923. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Zinc Analysis Run 8/9/2016 8:46 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas



Figure F-9: Trend Analysis for pH

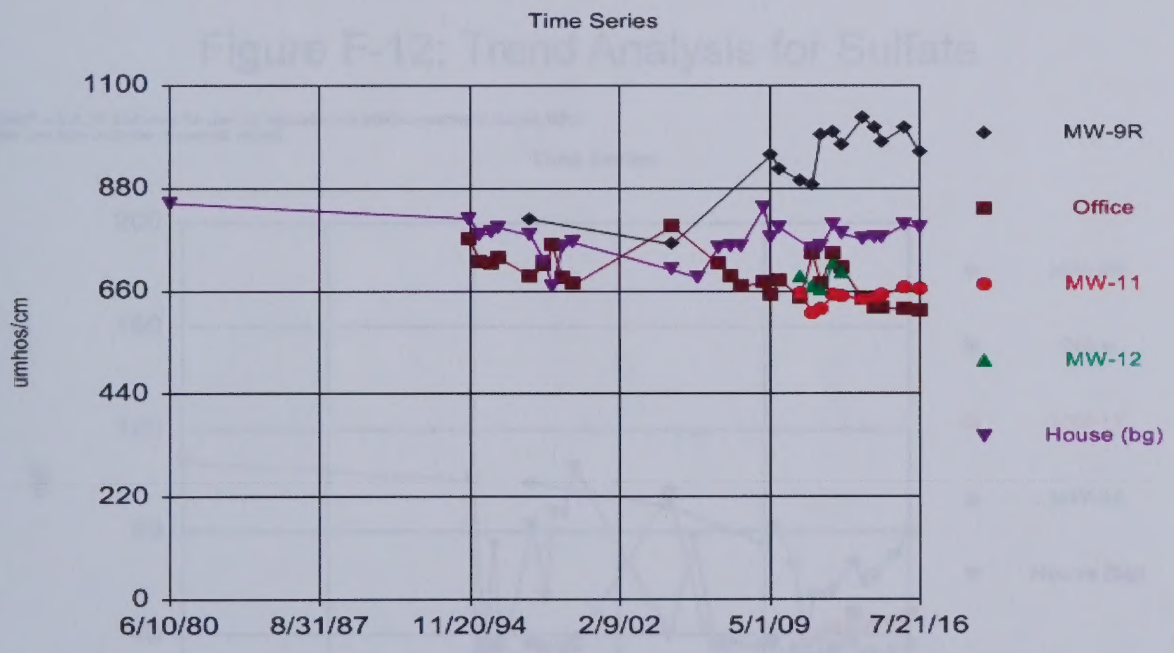
Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA



Constituent: pH Analysis Run 8/9/2016 8:48 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

Figure F-10: Trend Analysis for Specific Conductance

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA



Constituent: SC Analysis Run 8/9/2016 8:54 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas



Figure F-11: Trend Analysis for Chloride

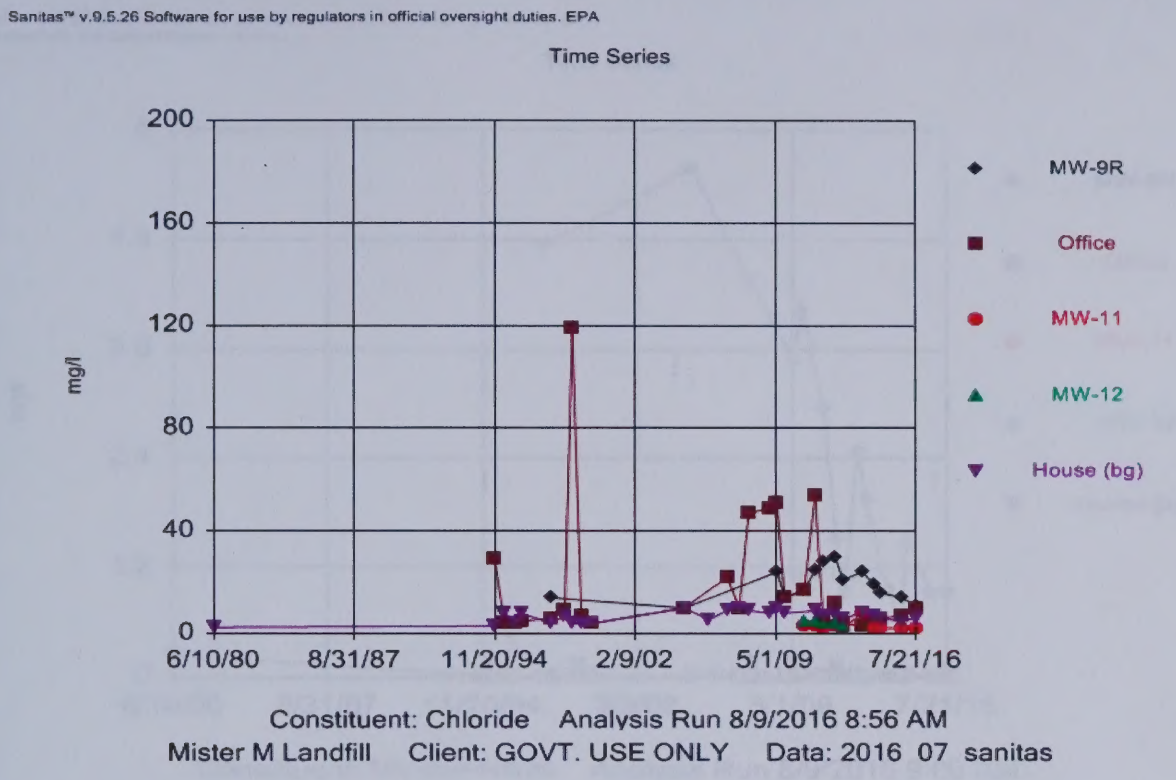


Figure F-12: Trend Analysis for Sulfate

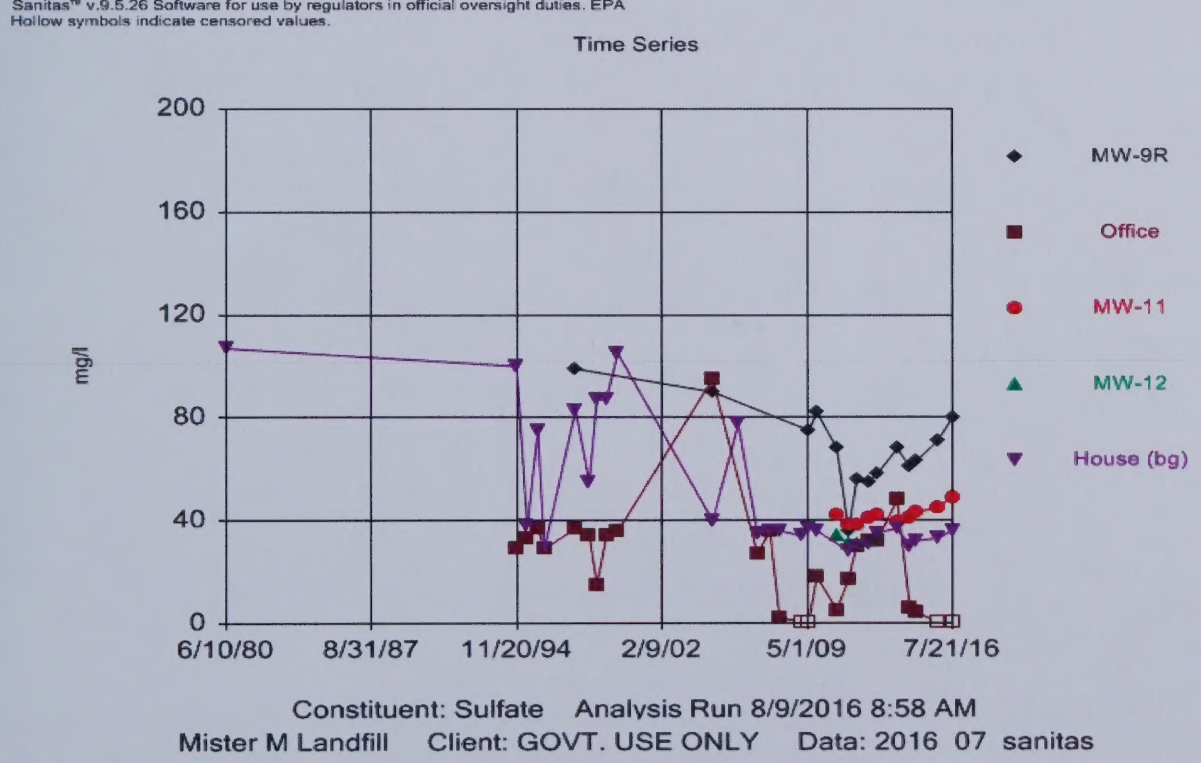
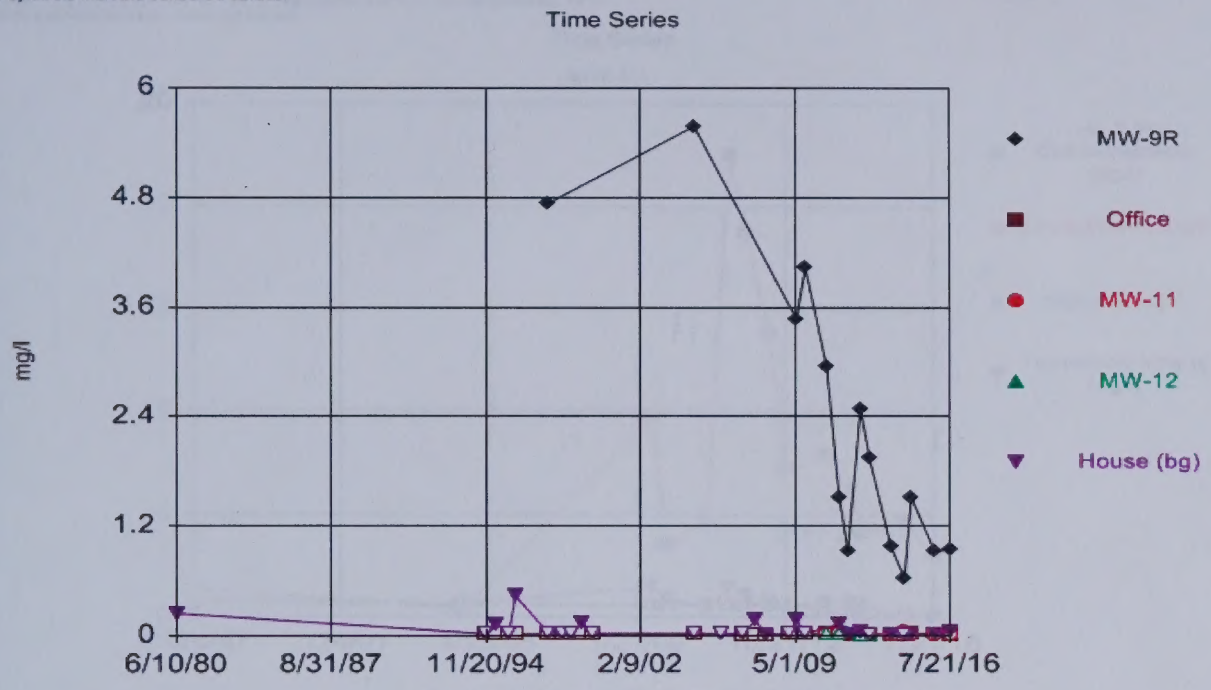




Figure F-13: Trend Analysis for Nitrate + Nitrite

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.



Constituent: Nitrate+Nitrite Analysis Run 8/9/2016 9:00 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

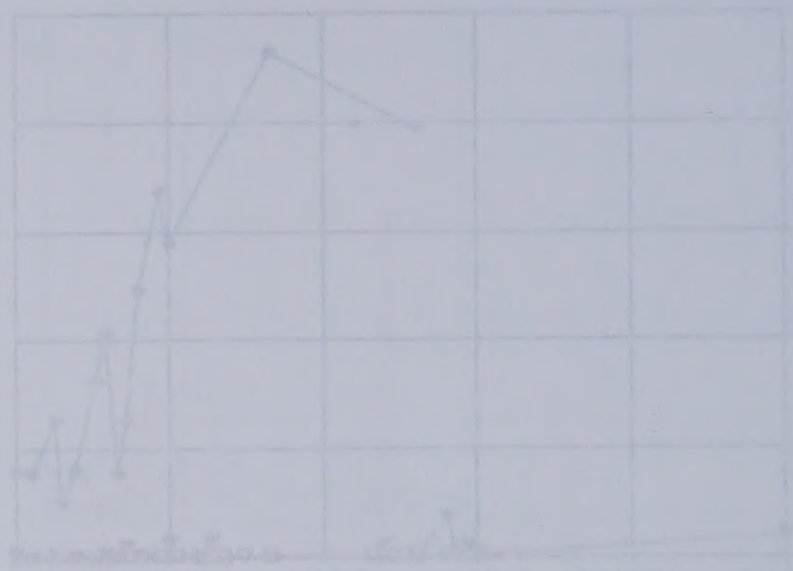
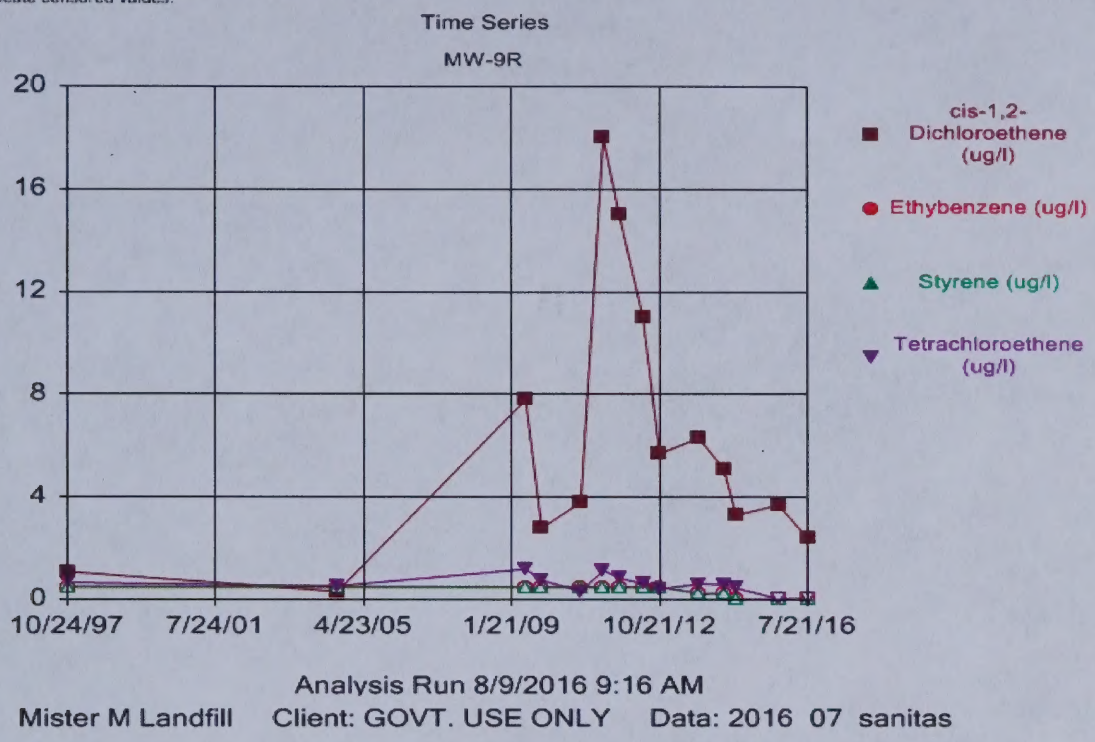


Figure F-14: Trend Analysis for selected VOC's in MW-9R

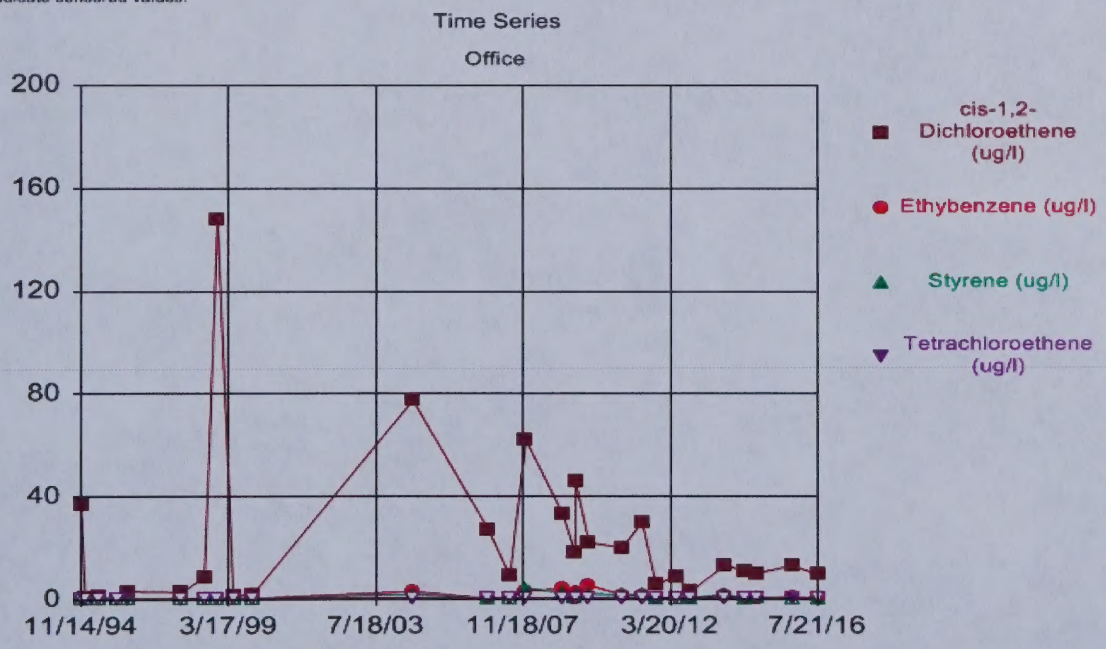
Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.



Analysis Run 8/9/2016 9:16 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

Figure F-15: Trend Analysis for selected VOC's in MW-OW

Sanitas™ v.9.5.26 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.



Analysis Run 8/9/2016 9:19 AM
Mister M Landfill Client: GOVT. USE ONLY Data: 2016 07 sanitas

Correspondence Slip

Requested: 8-17-16

Originator: JC

Date Needed By: 8-30-16

REVIEW ROUTING

Name	Task	Initial/Date
SARA NELSEN	Proof	SN, 8/24
MLH		MLH 8/25
RT		RT, 8-25-16
		/

Mail original via:
✓ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\ SWS\ Groundwater\ Misc rpt

Mail copy of enclosures to CC's? Y (N)

Copies of enclosures for file needed? Y (N)

Copy of letter for file needed? (Y) N

Email copies sent? Y (N)

Special Instructions:

This is a report for internal review and once edits are complete, it goes to the file

EMAIL copy sent to Project Originator? Y (N)

CLOSED MISTER M LANDFILL, LICENSE #302
LEWISTOWN, FERGUS COUNTY, MONTANA

OCTOBER 2015 GROUNDWATER MONITORING RESULTS AND STATISTICAL ANALYSES

Prepared By:

Montana Department of Environmental Quality

Solid Waste Section

November 30, 2015

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Appendix B: Results of Statistical Analyses

1.0 INTRODUCTION

Groundwater monitoring at the closed Mister M Landfill, License #302, was conducted in October, 2015, by the Department of Environmental Quality (DEQ), Solid Waste Section, according to the July 2011 Sampling and Analysis Plan for Groundwater (SAP) (MDEQ, 2011 [2]). The Mister M Landfill is located in Fergus County, Montana, approximately four miles east of Lewistown on US Highway 87. The landfill lies in a small south facing coulee which drains to Boyd Creek. The facility received Class II wastes from 1956 to 1998, and was granted interim closure status on December 5, 2000. The current owners, Marvin and Sandra Mintyala, operated the facility from 1974 until approximately 2000, when the site was abandoned.

According to the Geohydrologic Characterization (Gillespie, 1993 revised; and Gillespie, 1994) the landfill is underlain by the Kootenai formation, which consists of predominately shale with some silty sandstone. A basal unit of sandstone in the Kootenai formation is the uppermost aquifer in the area. Minor amounts of water have been encountered in the upper portions of the Kootenai formation but most of the monitoring wells completed in the upper Kootenai formation at the site have frequently been dry or contained minimal volumes of water.

Previous groundwater sampling at the facility was conducted by the owners or their consultants from 1993-1999 (Gillespie, 1995 and 1996; Energy Laboratories, 1997, 1998 [1], and 1998 [2]; and Portage Environmental, 1999 and 2000). From 2003-2007 Tetra Tech, Inc. was authorized by the DEQ to conduct groundwater monitoring in the absence of action by the owners (Energy Laboratories, 2003, 2004, 2005, 2006, and 2007; Maxim, 2005; Tetra Tech, 2006 and 2008). DEQ Solid Waste Section personnel have conducted groundwater monitoring from January 2009 to the present.

2.0 Field Procedures

DEQ Solid Waste Section personnel conducted monitoring activities on October, 29 and 30, 2015. This included monitoring well inspections, Static Water Level (SWL) measurements, and groundwater sample collection as part of the detection monitoring program currently in effect for the facility. Copies of the field notes are in the Solid Waste Section files. All field activities described in this report were conducted in accordance with the approved July 2011 SAP, and any deviations from the SAP are described herein. The analysis of groundwater samples was conducted by Energy Laboratories Inc., in Helena, Montana.

2.1 Well Inspections

The monitoring wells currently in use were inspected on October 29, 2015. MW-OW does not have an external protective casing. All other monitoring wells are in good condition.

2.2 Water Level Measurements

Static water levels were measured on October 29, 2015, in wells MW-5, MW-9R, MW-11, MW-12, and MW-OW using a Slope Indicator electric water level meter. The total depths of wells MW-9R, MW-11, and MW-12 were also recorded.

2.3 Groundwater Sampling

Groundwater samples were collected October 29, 2015, from wells MW-9R, MW-11, MW-12, MW-HW, and MW-OW. At each well, samples were collected for all of the parameters listed in the SAP. The wells were purged and sampled using disposable bailers. Field water quality measurements were made using an In-Situ Smart Troll 9500 water quality meter, which was calibrated by Solid Waste Section personnel.

3.0 Monitoring Results

3.1 Groundwater Levels and Flow

The October 2015 water levels were very similar to the October 2014 levels, with the exception of the deep wells. The deep wells water levels are historically variable and are based on relative elevations. Figure 4 displays the October 2015 static water levels on a map. No attempt was made to contour the static water levels as the shallow wells are completed in minor water bearing zones of unknown horizontal extent and connectivity, and the water level measurements made in the deep water bearing zone are from wells that have not yet been surveyed. Groundwater flow in the shallow water bearing zones likely follows local topography and flows in a south to southwest direction. Groundwater flow in the deep water bearing zone is assumed to be to the southwest based on records from domestic wells in the area. Tables containing historic water levels and hydrographs for both the shallow and deep water bearing zones are included in Appendix D.

3.2 Data Validation

Upon receipt from the laboratory, the analytical results were validated as described in the SAP to ensure that the data quality objectives had been met. All samples were analyzed within the required holding times. The relative percent difference for all field and laboratory duplicates were within control limits, all control samples and blanks were acceptable.

3.3 Groundwater Analytical Results

A copy of the laboratory analytical report is included in Appendix A. Historical concentration plots for all parameters detected during this sampling event and a table containing historical analytical results is included in Appendix C.

3.3.1 Indicator Parameters

Indicator parameters for the site continue to be stable with little fluctuations from those observed in the shallow background well MW-5 in previous sampling events and in other shallow wells.

3.3.2 Dissolved Metals

Arsenic, Barium, Cadmium, Iron and Zinc were detected at low levels in facility wells during this sampling event. None of the metals detected exceeded the groundwater protection standards.

3.3.3 Volatile Organic Compounds

Overall there do not appear to be any significant increasing trends in Volatile Organic Compounds (VOC's) at the site, only sporadic detections in MW-OW of (concentrations in µg/l): cis-1, 2-Dichloroethene (13), Ethyl benzene (0.97), Styrene (1.90) and vinyl chloride (0.42). And MW-9R had one detection of cis-1, 2-Dichloroethene at 3.7. Detection of VOC's in other wells are at estimated values, J flagged by the Laboratory, which are below the detection limit.

4.0 Statistical Analysis

4.1 Statistical Methods

The statistical analyses were performed using the statistical software package Sanitas v.9.5, the validated analytical data was first screened to determine which parameters required statistical analysis. Only parameters which were detected in one or more compliance wells (MW-11 and MW-12) and had been historically detected at least once in the background well (MW-HW) were analyzed using an inter-well prediction limit. If a parameter was detected in a compliance well, but was always non-detected in the background dataset, the background value was set as the detection limit and any detection of that parameter above the detection limit was considered a statistical exceedance of background. As a result of the screening described above, the parameters selected for prediction limit analysis were: pH, SC, Chloride, Sulfate, Arsenic, Barium, Iron, and Zinc. Trend analysis was run for selected VOC's.

The background dataset was screened to determine if trends were present using the Sen's Slope/Mann Kendall test. Each selected parameter was compared to the background dataset using an inter-well prediction limit analysis. The Sanitas software determines the distribution of the background dataset and performs the appropriate statistical test for that distribution. If the prediction limit analysis indicated an exceedance of background levels, a Sen's Slope/Mann Kendall test was conducted to analyze any trends in the data. All of the statistical tests were performed at a 95% site-wide confidence level, or the maximum confidence level that was possible given the size of the background dataset if a 95% confidence level was not possible.

A Sen's Slope/Mann Kendall test was also conducted on all parameters detected in the interior monitoring wells (MW-9R and MW-OW) to analyze any trends in the data.

4.2 Analysis Results

Table 1 contains a summary of the results of the statistical analyses. The full results of the statistical analyses are included in Appendix F. Due to the small size of the background dataset the site-wide confidence levels for non-parametric tests were less than 95%.

The values from the current sampling event for all parameters in compliance wells MW-11 and MW-12 were within prediction limits.

Trend analyses for well MW-9R indicated significant decreasing trends for Sulfate and Nitrate + Nitrite. The cause of these trends is unknown, but MW-9R is completed in a shallow aquifer which produces very little water, thus changes in groundwater chemistry are not unexpected.

5.0 Conclusions and Recommendations

Groundwater monitoring was conducted by the DEQ at the Mister M Landfill on October 29 and 30, 2015. Water levels were measured in five wells, and groundwater samples were collected from five wells. All currently used wells were inspected.

Water levels will continue to be monitored semi-annually in the future to provide additional data on water level trends.

Additional data from the background well, MW-HW, is useful for evaluating the results from the other deep wells and increasing the power of the statistical tests. MW-HW will continue to be sampled on a semi-annual basis to increase the size of the background dataset for the compliance wells. Three VOCs detected in MW-9R at much lower levels than previous sampling events and there appears to be an overall slightly downward trend. The contaminants present in MW-9R are different than those seen in MW-OW indicating that the contamination may be from a different source or MW-9R may be closer to the source area than MW-OW; however the precise source of these VOCs is unknown. Well MW-9R will continue to be sampled in future events for Inorganics and VOCs. Well MW-OW continues to show both inorganic and organic contamination. Sulfate and Chloride have returned to near normal levels, while Zinc and Iron concentrations remain slightly above normal levels. These metals are possibly the result of the galvanized well casing and or previous down-hole equipment associated with the use of MW-OW as a water supply well and not due to landfill leachate.

The analytical results and statistical analyses from compliance wells MW-11 and MW-12 show no impacts from landfill leachate. The one VOC, cis-1, 2-Dichloroethene, which was previously detected at a very low level in MW-12 was not detected during the past four sampling events. All parameters in the compliance wells are below background levels thus the facility remains in detection monitoring. MW-11 and MW-12 will continue to be sampled semi-annually as the point of compliance wells for the facility. The next groundwater sampling event is tentatively scheduled for April 2016.

6.0 REFERENCES

Gillespie, Robert W. P.E., 1993 revised, "Geohydrologic Characterization, Mister M Landfill, Lewistown, Montana"

Gillespie, Robert W. P.E, 1994, "Addendum to Site Characterization, Mister M Landfill, License No. 302, Lewistown, Montana"

Gillespie, Robert W. P.E, 1995, "Annual Groundwater Quality Report, Mister M Landfill Site, Lewistown, Montana"

Maxim Technologies, 2005, "November 2005 Groundwater Monitoring Field Notes, Mister M Landfill, Lewistown, Montana"

MDEQ, 2011 [1], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, May 2011 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2011 [2], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, Groundwater Monitoring Sampling and Analysis Plan"

MDEQ, 2011 [3], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, October 2011 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2012, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, May 2012 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2012, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, October 2012 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2013, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, October 2013 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2014, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, June 2014 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2014, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, October 2014 Groundwater and Monitoring Results and Statistical Analyses"

TABLES

Table B-1: Historical Water Levels

Date	MW-1	MW-2	MW-4	MW-5	MW-6	MW-7	MW-7R	MW-8	MW-9	MW-9R	MW-10	MW-10R	MW-11	MW-12	MW-OW
6/16/93	Dry	Dry	Dry	Dry	Dry	Dry		Dry							NM
10/14/94	NM	NM	NM	NM	NM	NM		NM	Dry		4155.69				NM
12/15/95	4154.12	Dry	Dry	4177.65	4160.64	4173.00		Dry	4140.77		4160.92				NM
3/28/96	4157.37	NM	NM	NM	NM	4176.51		NM	4139.43		4158.09				NM
11/29/05	4154.17	4174.1	NM	4181.82	Dry		Dry	4155.06		4159(1)		4161(1)			NM
12/18/07	Dry	Dry	Dry	4165.54	Dry		Dry	4155.04		4159(1)		4164(1)			4162(1)
1/21/09	4153.12	Dry	NM	4165.75(2)	?(3)		4177(1)(4)	NM		4159(1)		4164(1)			4163(1)
6/1/09	NM	NM	NM	4172.02	NM		NM	NM		4163(1)		4170(1)			4170(1)
10/26/09	NM	NM	NM	4165.23	NM		NM	NM		4160(1)		4164(1)			4163(1)
2/26/10	NM	NM	Dry	4165.44	4160.07		4177(1)	4154.52		4159(1)		NM(5)			4162(1)
6/21/10	NM	NM	NM	4172.91	4171.36		4190(1)	4169.97		4180(1)		NM(5)			4172(1)
10/25/10	NM	NM		4169.50	4166.84					4161(1)			4168(1)	4167(1)	4168(1)
5/23/11	NM	NM		4179.62	4178.04					4183(1)			4172(1)	Flowing(1)(6)	4179(1)
10/17/11	NM	NM		4171.25	4168.30					4160(1)			4175(1)	Flowing(1)(6)	4171(1)
5/22/12	NM	NM		4174.09	4172.42					4166(1)			4176(1)	Flowing(1)(6)	4173(1)
10/23/12	NM	NM		4166.19	NM					4159(1)			4173(1)	4164(1)	4165(1)
10/23/13	NM	NM		4163.84	4160.36					4158(1)			4170(1)	4164(1)	4166(1)
6/10/14	4148.97	NM		4168.81	4166.35			4152.34		4160(1)			4170(1)	4166(1)	4167(1)
10/1/14	4149.32	NM		4167.83	4160.37			4153.31		4160(1)			4169(1)	4165(1)	4166(1)
10/29/15	NM	NM		4165.45	4160.97			NM		4159(1)			4166(1)	4158(1)	4160(1)

Notes:

NM = Not measured

[ ] = Well not present.

(1) Reference elevation estimated from topographic contours (5ft) and field observations

(2) Deeper than tape, 2 ft. of water in well, DTW calculated from TD recorded 12/18/07

(3) Deeper than tape, DTW unknown

(4) 3 in. of water in well, DTW calculated from TD

(5) Well damaged, measurement not possible.

(6) Well flowing artesian at time of measurement, top of casing elevation 4169ft

FIGURES



Figure 4: Groundwater Levels

Base Aerial Photo from 2012.

The reference elevations for MW-9R, MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

Figure B-1: Static Water Levels in Shallow Wells



The reference elevations for MW-7R, MW-9R, and MW-10R are estimated from topographic contours and field observations.



Figure B-2: Static Water Levels in Deep Wells



The reference elevations for MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.



APPENDIX A: LABORATORY ANALYTICAL REPORT

ENERGY LABORATORIES
Trust our People. Trust our Data.
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Billings, MT 800.735.4489 • Casper, WY 888.235.0515
College Station, TX 888.690.2218 • Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

ANALYTICAL SUMMARY REPORT

November 12, 2015

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H15100610 Quote ID: H1110 - Landfill Parameters

Project Name: Mister M Landfill

Energy Laboratories Inc Helena MT received the following 7 samples for MT-DEQ Solid Waste Section on 10/30/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H15100610-001	MW-I2	10/29/15 12:10	10/30/15	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H15100610-002	MW-II	10/29/15 13:10	10/30/15	Groundwater	Same As Above
H15100610-003	MW-9r	10/29/15 13:50	10/30/15	Groundwater	Same As Above
H15100610-004	MW-OW	10/29/15 14:30	10/30/15	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H15100610-005	MW-HW	10/29/15 15:45	10/30/15	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H15100610-006	MW-HW Dup	10/29/15 15:45	10/30/15	Groundwater	Same As Above
H15100610-007	TB 5125	10/29/15 12:10	10/30/15	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Amanda Carlson
Assistant Laboratory Manager-Helena,MT

Digitally signed by
Amanda B. Carlson
Date: 2015.11.12 11:19:39 -07:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-001
Client Sample ID: MW-I2

Report Date: 11/12/15
Collection Date: 10/29/15 12:10
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	10/30/15 15:05 / SRW
Conductivity @ 25 C	718	umhos/cm		1		A2510 B	10/30/15 15:05 / SRW
INORGANICS							
Chloride	3	mg/L		1		E300.0	10/30/15 21:06 / SRW
Sulfate	36	mg/L		1		E300.0	10/30/15 21:06 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/04/15 10:55 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	11/11/15 01:15 / dck
Arsenic	ND	mg/L		0.001		SW6020	11/11/15 01:15 / dck
Barium	0.046	mg/L		0.003		SW6020	11/11/15 01:15 / dck
Beryllium	ND	mg/L		0.0008		SW6020	11/11/15 16:40 / dck
Cadmium	ND	mg/L		0.00003		SW6020	11/11/15 01:15 / dck
Chromium	ND	mg/L		0.01		SW6020	11/11/15 01:15 / dck
Cobalt	ND	mg/L		0.01		SW6020	11/11/15 01:15 / dck
Copper	ND	mg/L		0.002		SW6020	11/11/15 01:15 / dck
Iron	ND	mg/L		0.02		SW6020	11/11/15 01:15 / dck
Lead	ND	mg/L		0.0003		SW6020	11/11/15 01:15 / dck
Nickel	ND	mg/L		0.002		SW6020	11/11/15 01:15 / dck
Selenium	ND	mg/L		0.001		SW6020	11/11/15 01:15 / dck
Silver	ND	mg/L		0.0002		SW6020	11/11/15 01:15 / dck
Thallium	ND	mg/L		0.0002		SW6020	11/11/15 01:15 / dck
Vanadium	ND	mg/L		0.1		SW6020	11/11/15 01:15 / dck
Zinc	ND	mg/L		0.008		SW6020	11/11/15 01:15 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 16:40 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 16:40 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Carbon disulfide	0.16	ug/L	J	1.0		SW8260B	11/03/15 16:40 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 16:40 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-001
Client Sample ID: MW-I2

Report Date: 11/12/15
Collection Date: 10/29/15 12:10
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 16:40 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
cis-1,2-Dichloroethene	0.26	ug/L	J	0.50		SW8260B	11/03/15 16:40 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 16:40 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 16:40 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 16:40 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 16:40 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 16:40 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 16:40 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 16:40 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 16:40 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 16:40 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 16:40 / kjw
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	11/03/15 16:40 / kjw
Surr: Dibromofluoromethane	92.0	%REC		77-126		SW8260B	11/03/15 16:40 / kjw
Surr: p-Bromofluorobenzene	89.0	%REC		76-127		SW8260B	11/03/15 16:40 / kjw
Surr: Toluene-d8	92.0	%REC		79-122		SW8260B	11/03/15 16:40 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-002
Client Sample ID: MW-II

Report Date: 11/12/15
Collection Date: 10/29/15 13:10
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	10/30/15 15:08 / SRW
Conductivity @ 25 C	667	umhos/cm		1		A2510 B	10/30/15 15:08 / SRW
INORGANICS							
Chloride	2	mg/L		1		E300.0	10/30/15 21:18 / SRW
Sulfate	45	mg/L		1		E300.0	10/30/15 21:18 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/04/15 10:56 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	11/11/15 01:31 / dck
Arsenic	ND	mg/L		0.001		SW6020	11/11/15 01:31 / dck
Barium	0.037	mg/L		0.003		SW6020	11/11/15 01:31 / dck
Beryllium	ND	mg/L		0.0008		SW6020	11/11/15 16:49 / dck
Cadmium	ND	mg/L		0.00003		SW6020	11/11/15 01:31 / dck
Chromium	ND	mg/L		0.01		SW6020	11/11/15 01:31 / dck
Cobalt	ND	mg/L		0.01		SW6020	11/11/15 01:31 / dck
Copper	ND	mg/L		0.002		SW6020	11/11/15 01:31 / dck
Iron	ND	mg/L		0.02		SW6020	11/11/15 01:31 / dck
Lead	ND	mg/L		0.0003		SW6020	11/11/15 01:31 / dck
Nickel	ND	mg/L		0.002		SW6020	11/11/15 01:31 / dck
Selenium	ND	mg/L		0.001		SW6020	11/11/15 01:31 / dck
Silver	ND	mg/L		0.0002		SW6020	11/11/15 01:31 / dck
Thallium	ND	mg/L		0.0002		SW6020	11/11/15 01:31 / dck
Vanadium	ND	mg/L		0.1		SW6020	11/11/15 01:31 / dck
Zinc	ND	mg/L		0.008		SW6020	11/11/15 01:31 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 20:57 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 20:57 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-002
Client Sample ID: MW-II

Report Date: 11/12/15
Collection Date: 10/29/15 13:10
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 20:57 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 20:57 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 20:57 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 20:57 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 20:57 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 20:57 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 20:57 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 20:57 / kjw
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	11/03/15 20:57 / kjw
Surr: Dibromofluoromethane	88.0	%REC		77-126		SW8260B	11/03/15 20:57 / kjw
Surr: p-Bromofluorobenzene	92.0	%REC		76-127		SW8260B	11/03/15 20:57 / kjw
Surr: Toluene-d8	90.0	%REC		79-122		SW8260B	11/03/15 20:57 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-003
Client Sample ID: MW-9r

Report Date: 11/12/15
Collection Date: 10/29/15 13:50
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	10/30/15 15:10 / SRW
Conductivity @ 25 C	1010	umhos/cm		1		A2510 B	10/30/15 15:10 / SRW
INORGANICS							
Chloride	14	mg/L		1		E300.0	10/30/15 21:29 / SRW
Sulfate	71	mg/L		1		E300.0	10/30/15 21:29 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.93	mg/L		0.01		E353.2	11/04/15 10:57 / cmm
METALS, DISSOLVED							
Iron	0.04	mg/L		0.02		SW6020	11/11/15 01:34 / dck
Zinc	0.008	mg/L		0.008		SW6020	11/11/15 01:34 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 20:28 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 20:28 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
Dichlorodifluoromethane	0.20	ug/L	J	0.50		SW8260B	11/03/15 20:28 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
cis-1,2-Dichloroethene	3.7	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 20:28 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 20:28 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-003
Client Sample ID: MW-9r

Report Date: 11/12/15
Collection Date: 10/29/15 13:50
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 20:28 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 20:28 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 20:28 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Tetrachloroethene	0.44	ug/L	J	0.50		SW8260B	11/03/15 20:28 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Trichloroethene	0.25	ug/L	J	0.50		SW8260B	11/03/15 20:28 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 20:28 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 20:28 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 20:28 / kjw
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	11/03/15 20:28 / kjw
Surr: Dibromofluoromethane	89.0	%REC		77-126		SW8260B	11/03/15 20:28 / kjw
Surr: p-Bromofluorobenzene	93.0	%REC		76-127		SW8260B	11/03/15 20:28 / kjw
Surr: Toluene-d8	86.0	%REC		79-122		SW8260B	11/03/15 20:28 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-004
Client Sample ID: MW-OW

Report Date: 11/12/15
Collection Date: 10/29/15 14:30
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.7	s.u.	H	0.1		A4500-H B	10/30/15 15:13 / SRW
Conductivity @ 25 C	621	umhos/cm		1		A2510 B	10/30/15 15:13 / SRW
INORGANICS							
Chloride	7	mg/L		1		E300.0	10/30/15 22:35 / SRW
Sulfate	ND	mg/L		1		E300.0	10/30/15 22:35 / SRW
METALS, DISSOLVED							
Iron	ND	mg/L		0.02		SW6020	11/11/15 01:38 / dck
Zinc	0.336	mg/L		0.008		SW6020	11/11/15 01:38 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 21:25 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 21:25 / kjw
Benzene	0.50	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 21:25 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 21:25 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 21:25 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
cis-1,2-Dichloroethene	13	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 21:25 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 21:25 / kjw
Ethylbenzene	0.97	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 21:25 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 21:25 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-004
Client Sample ID: MW-OW

Report Date: 11/12/15
Collection Date: 10/29/15 14:30
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 21:25 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 21:25 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Styrene	1.6	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Trichloroethene	0.14	ug/L	J	0.50		SW8260B	11/03/15 21:25 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 21:25 / kjw
Vinyl chloride	0.42	ug/L		0.40		SW8260B	11/03/15 21:25 / kjw
m+p-Xylenes	0.27	ug/L	J	1.0		SW8260B	11/03/15 21:25 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 21:25 / kjw
Xylenes, Total	0.27	ug/L	J	1.0		SW8260B	11/03/15 21:25 / kjw
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	11/03/15 21:25 / kjw
Surr: Dibromofluoromethane	88.0	%REC		77-126		SW8260B	11/03/15 21:25 / kjw
Surr: p-Bromofluorobenzene	92.0	%REC		76-127		SW8260B	11/03/15 21:25 / kjw
Surr: Toluene-d8	88.0	%REC		79-122		SW8260B	11/03/15 21:25 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-005
Client Sample ID: MW-HW

Report Date: 11/12/15
Collection Date: 10/29/15 15:45
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	10/30/15 15:15 / SRW
Conductivity @ 25 C	802	umhos/cm		1		A2510 B	10/30/15 15:15 / SRW
INORGANICS							
Chloride	5	mg/L		1		E300.0	10/30/15 22:46 / SRW
Sulfate	33	mg/L		1		E300.0	10/30/15 22:46 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	11/04/15 10:58 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	11/11/15 01:41 / dck
Arsenic	ND	mg/L		0.001		SW6020	11/11/15 01:41 / dck
Barium	0.077	mg/L		0.003		SW6020	11/11/15 01:41 / dck
Beryllium	ND	mg/L		0.0008		SW6020	11/11/15 17:05 / dck
Cadmium	ND	mg/L		0.00003		SW6020	11/11/15 01:41 / dck
Chromium	ND	mg/L		0.01		SW6020	11/11/15 01:41 / dck
Cobalt	ND	mg/L		0.01		SW6020	11/11/15 01:41 / dck
Copper	ND	mg/L		0.002		SW6020	11/11/15 01:41 / dck
Iron	ND	mg/L		0.02		SW6020	11/11/15 01:41 / dck
Lead	ND	mg/L		0.0003		SW6020	11/11/15 01:41 / dck
Nickel	ND	mg/L		0.002		SW6020	11/11/15 01:41 / dck
Selenium	ND	mg/L		0.001		SW6020	11/11/15 01:41 / dck
Silver	ND	mg/L		0.0002		SW6020	11/11/15 01:41 / dck
Thallium	ND	mg/L		0.0002		SW6020	11/11/15 01:41 / dck
Vanadium	ND	mg/L		0.1		SW6020	11/11/15 01:41 / dck
Zinc	0.019	mg/L		0.008		SW6020	11/11/15 01:41 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 19:03 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 19:03 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Chloroform	0.32	ug/L	J	0.50		SW8260B	11/03/15 19:03 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-005
Client Sample ID: MW-HW

Report Date: 11/12/15
Collection Date: 10/29/15 15:45
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 19:03 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 19:03 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 19:03 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 19:03 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 19:03 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 19:03 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 19:03 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 19:03 / kjw
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	11/03/15 19:03 / kjw
Surr: Dibromofluoromethane	92.0	%REC		77-126		SW8260B	11/03/15 19:03 / kjw
Surr: p-Bromofluorobenzene	89.0	%REC		76-127		SW8260B	11/03/15 19:03 / kjw
Surr: Toluene-d8	85.0	%REC		79-122		SW8260B	11/03/15 19:03 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-006
Client Sample ID: MW-HW Dup

Report Date: 11/12/15
Collection Date: 10/29/15 15:45
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	10/30/15 15:17 / SRW
Conductivity @ 25 C	802	umhos/cm		1		A2510 B	10/30/15 15:17 / SRW
INORGANICS							
Chloride	5	mg/L		1		E300.0	10/30/15 22:58 / SRW
Sulfate	34	mg/L		1		E300.0	10/30/15 22:58 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	11/04/15 11:00 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	11/11/15 01:44 / dck
Arsenic	ND	mg/L		0.001		SW6020	11/11/15 01:44 / dck
Barium	0.075	mg/L		0.003		SW6020	11/11/15 01:44 / dck
Beryllium	ND	mg/L		0.0008		SW6020	11/11/15 17:08 / dck
Cadmium	ND	mg/L		0.00003		SW6020	11/11/15 01:44 / dck
Chromium	ND	mg/L		0.01		SW6020	11/11/15 01:44 / dck
Cobalt	ND	mg/L		0.01		SW6020	11/11/15 01:44 / dck
Copper	ND	mg/L		0.002		SW6020	11/11/15 01:44 / dck
Iron	ND	mg/L		0.02		SW6020	11/11/15 01:44 / dck
Lead	ND	mg/L		0.0003		SW6020	11/11/15 01:44 / dck
Nickel	ND	mg/L		0.002		SW6020	11/11/15 01:44 / dck
Selenium	ND	mg/L		0.001		SW6020	11/11/15 01:44 / dck
Silver	ND	mg/L		0.0002		SW6020	11/11/15 01:44 / dck
Thallium	ND	mg/L		0.0002		SW6020	11/11/15 01:44 / dck
Vanadium	ND	mg/L		0.1		SW6020	11/11/15 01:44 / dck
Zinc	0.017	mg/L		0.008		SW6020	11/11/15 01:44 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 19:31 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 19:31 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Bromodichloromethane	0.12	ug/L	J	0.50		SW8260B	11/03/15 19:31 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Chloroform	0.50	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-006
Client Sample ID: MW-HW Dup

Report Date: 11/12/15
Collection Date: 10/29/15 15:45
DateReceived: 10/30/15
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 19:31 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 19:31 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 19:31 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 19:31 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 19:31 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 19:31 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 19:31 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 19:31 / kjw
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	11/03/15 19:31 / kjw
Surr: Dibromofluoromethane	92.0	%REC		77-126		SW8260B	11/03/15 19:31 / kjw
Surr: p-Bromofluorobenzene	87.0	%REC		76-127		SW8260B	11/03/15 19:31 / kjw
Surr: Toluene-d8	86.0	%REC		79-122		SW8260B	11/03/15 19:31 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-007
Client Sample ID: TB 5125

Report Date: 11/12/15
Collection Date: 10/29/15 12:10
DateReceived: 10/30/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	11/03/15 16:11 / kjw
Acrylonitrile	ND	ug/L		3.0		SW8260B	11/03/15 16:11 / kjw
Benzene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Bromochloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Bromodichloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Bromoform	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Bromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Carbon disulfide	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Chlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Chloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Chloroform	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Chloromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Dibromomethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 16:11 / kjw
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	11/03/15 16:11 / kjw
Ethylbenzene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
2-Hexanone	ND	ug/L		20		SW8260B	11/03/15 16:11 / kjw
Iodomethane	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
Methyl ethyl ketone	ND	ug/L		20		SW8260B	11/03/15 16:11 / kjw
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	11/03/15 16:11 / kjw
Methylene chloride	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Styrene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Tetrachloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Toluene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Trichloroethene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H15100610-007
Client Sample ID: TB 5125

Report Date: 11/12/15
Collection Date: 10/29/15 12:10
DateReceived: 10/30/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Vinyl acetate	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
Vinyl chloride	ND	ug/L		0.40		SW8260B	11/03/15 16:11 / kjw
m+p-Xylenes	ND	ug/L		1.0		SW8260B	11/03/15 16:11 / kjw
o-Xylene	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Xylenes, Total	ND	ug/L		0.50		SW8260B	11/03/15 16:11 / kjw
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	11/03/15 16:11 / kjw
Surr: Dibromofluoromethane	96.0	%REC		77-126		SW8260B	11/03/15 16:11 / kjw
Surr: p-Bromofluorobenzene	87.0	%REC		76-127		SW8260B	11/03/15 16:11 / kjw
Surr: Toluene-d8	91.0	%REC		79-122		SW8260B	11/03/15 16:11 / kjw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: PHSC_101-H_151030A	
Lab ID: CCV - SC 1413		Continuing Calibration Verification Standard							10/30/15 12:45	
Conductivity @ 25 C		1420	umhos/cm	1.0	101	90	110			
Method: A2510 B									Batch: R110613	
Lab ID: SC 150		Initial Calibration Verification Standard				Run: PHSC_101-H_151030A			10/30/15 08:24	
Conductivity @ 25 C		151	umhos/cm	1.0	101	90	110			
Lab ID: SC 5000		Initial Calibration Verification Standard				Run: PHSC_101-H_151030A			10/30/15 08:26	
Conductivity @ 25 C		5040	umhos/cm	1.0	101	90	110			
Lab ID: SC 20000		Initial Calibration Verification Standard				Run: PHSC_101-H_151030A			10/30/15 08:29	
Conductivity @ 25 C		19700	umhos/cm	1.0	99	90	110			
Lab ID: SC 2ND 1000		Laboratory Control Sample				Run: PHSC_101-H_151030A			10/30/15 08:31	
Conductivity @ 25 C		1010	umhos/cm	1.0	101	90	110			
Lab ID: H15100609-012ADUP		Sample Duplicate				Run: PHSC_101-H_151030A			10/30/15 15:03	
Conductivity @ 25 C		555	umhos/cm	1.0				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A4500-H B**									Analytical Run: PHSC_101-H_151030A	
Lab ID: **pH 7**	Initial Calibration Verification Standard								10/30/15 08:21	
pH		7.0	s.u.	0.1	100	98	102			
Lab ID: **CCV - pH 7**	Continuing Calibration Verification Standard								10/30/15 12:42	
pH		7.0	s.u.	0.1	100	98	102			
Method: **A4500-H B**									Batch: R110613	
Lab ID: **H15100609-012ADUP**	Sample Duplicate					Run: PHSC_101-H_151030A			10/30/15 15:03	
pH		8.2	s.u.	0.1				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_151030A	
Lab ID: ICV	2	Initial Calibration Verification Standard							10/30/15 16:07	
Chloride		97.5	mg/L	1.0	97	90	110			
Sulfate		403	mg/L	1.0	101	90	110			
Lab ID: CCV103015-2	2	Continuing Calibration Verification Standard							10/30/15 19:15	
Chloride		96.9	mg/L	1.0	97	90	110			
Sulfate		401	mg/L	1.0	100	90	110			
Lab ID: CCV103015-3	2	Continuing Calibration Verification Standard							10/30/15 22:02	
Chloride		97.0	mg/L	1.0	97	90	110			
Sulfate		397	mg/L	1.0	99	90	110			
Method: E300.0									Batch: R110668	
Lab ID: ICB	2	Method Blank				Run: IC102-H_151030A			10/30/15 15:55	
Chloride		0.02	mg/L	0.009						
Sulfate		0.09	mg/L	0.02						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC102-H_151030A			10/30/15 16:18	
Chloride		46.4	mg/L	1.0	93	90	110			
Sulfate		204	mg/L	1.0	102	90	110			
Lab ID: H15100610-003AMS	2	Sample Matrix Spike				Run: IC102-H_151030A			10/30/15 21:40	
Chloride		61.7	mg/L	1.0	96	90	110			
Sulfate		279	mg/L	1.0	104	90	110			
Lab ID: H15100610-003AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_151030A			10/30/15 21:51	
Chloride		57.9	mg/L	1.0	88	90	110	6.3	20	S
Sulfate		259	mg/L	1.0	94	90	110	7.5	20	
Lab ID: H15100610-006AMS	2	Sample Matrix Spike				Run: IC102-H_151030A			10/30/15 23:09	
Chloride		50.9	mg/L	1.0	91	90	110			
Sulfate		237	mg/L	1.0	102	90	110			
Lab ID: H15100610-006AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_151030A			10/30/15 23:20	
Chloride		50.9	mg/L	1.0	91	90	110	0.1	20	
Sulfate		233	mg/L	1.0	99	90	110	2.0	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-HE_151104A	
Lab ID: ICV		Initial Calibration Verification Standard							11/04/15 10:42	
Nitrogen, Nitrate+Nitrite as N		1.09	mg/L	0.010	109	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard							11/04/15 10:44	
Nitrogen, Nitrate+Nitrite as N		0.523	mg/L	0.010	105	90	110			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank							11/04/15 10:45	
Nitrogen, Nitrate+Nitrite as N		-0.00622	mg/L	0.010		0	0			
Method: E353.2									Batch: R110744	
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-HE_151104A			11/04/15 10:43	
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	102	90	110			
Lab ID: MBLK		Method Blank				Run: FIA203-HE_151104A			11/04/15 10:48	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.003						
Lab ID: H15100609-010BMS		Sample Matrix Spike				Run: FIA203-HE_151104A			11/04/15 10:50	
Nitrogen, Nitrate+Nitrite as N		1.20	mg/L	0.011	103	90	110			
Lab ID: H15100609-010BMSD		Sample Matrix Spike Duplicate				Run: FIA203-HE_151104A			11/04/15 10:51	
Nitrogen, Nitrate+Nitrite as N		1.24	mg/L	0.011	107	90	110	3.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020								Analytical Run: ICPMS204-B_151110B		
Lab ID: ICV STD	16	Initial Calibration Verification Standard							11/10/15 13:27	
Antimony		0.0604	mg/L	0.0010	101	90	110			
Arsenic		0.0602	mg/L	0.0010	100	90	110			
Barium		0.0606	mg/L	0.0010	101	90	110			
Beryllium		0.0313	mg/L	0.0010	104	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0610	mg/L	0.0010	102	90	110			
Cobalt		0.0609	mg/L	0.0010	102	90	110			
Copper		0.0622	mg/L	0.0010	104	90	110			
Iron		0.317	mg/L	0.0010	106	90	110			
Lead		0.0590	mg/L	0.0010	98	90	110			
Nickel		0.0610	mg/L	0.0010	102	90	110			
Selenium		0.0606	mg/L	0.0010	101	90	110			
Silver		0.0301	mg/L	0.0010	100	90	110			
Thallium		0.0588	mg/L	0.0010	98	90	110			
Vanadium		0.0601	mg/L	0.0010	100	90	110			
Zinc		0.0621	mg/L	0.0010	103	90	110			
Lab ID: ICV STD	16	Initial Calibration Verification Standard							11/11/15 02:23	
Antimony		0.0608	mg/L	0.0010	101	90	110			
Arsenic		0.0607	mg/L	0.0010	101	90	110			
Barium		0.0611	mg/L	0.0010	102	90	110			
Beryllium		0.0318	mg/L	0.0010	106	90	110			
Cadmium		0.0314	mg/L	0.0010	105	90	110			
Chromium		0.0614	mg/L	0.0010	102	90	110			
Cobalt		0.0620	mg/L	0.0010	103	90	110			
Copper		0.0626	mg/L	0.0010	104	90	110			
Iron		0.321	mg/L	0.0010	107	90	110			
Lead		0.0595	mg/L	0.0010	99	90	110			
Nickel		0.0628	mg/L	0.0010	105	90	110			
Selenium		0.0616	mg/L	0.0010	103	90	110			
Silver		0.0308	mg/L	0.0010	103	90	110			
Thallium		0.0591	mg/L	0.0010	98	90	110			
Vanadium		0.0606	mg/L	0.0010	101	90	110			
Zinc		0.0629	mg/L	0.0010	105	90	110			
Lab ID: ICV STD	16	Initial Calibration Verification Standard							11/11/15 10:08	
Antimony		0.0613	mg/L	0.0010	102	90	110			
Arsenic		0.0610	mg/L	0.0010	102	90	110			
Barium		0.0608	mg/L	0.0010	101	90	110			
Beryllium		0.0313	mg/L	0.0010	104	90	110			
Cadmium		0.0315	mg/L	0.0010	105	90	110			
Chromium		0.0618	mg/L	0.0010	103	90	110			
Cobalt		0.0626	mg/L	0.0010	104	90	110			
Copper		0.0630	mg/L	0.0010	105	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS204-B_151110B	
Lab ID: ICV STD	16	Initial Calibration Verification Standard							11/11/15 10:08	
Iron		0.322	mg/L	0.0010	107	90	110			
Lead		0.0605	mg/L	0.0010	101	90	110			
Nickel		0.0628	mg/L	0.0010	105	90	110			
Selenium		0.0612	mg/L	0.0010	102	90	110			
Silver		0.0309	mg/L	0.0010	103	90	110			
Thallium		0.0600	mg/L	0.0010	100	90	110			
Vanadium		0.0622	mg/L	0.0010	104	90	110			
Zinc		0.0635	mg/L	0.0010	106	90	110			
Lab ID: ICV STD	16	Initial Calibration Verification Standard							11/11/15 14:48	
Antimony		0.0604	mg/L	0.0010	101	90	110			
Arsenic		0.0614	mg/L	0.0010	102	90	110			
Barium		0.0615	mg/L	0.0010	102	90	110			
Beryllium		0.0307	mg/L	0.0010	102	90	110			
Cadmium		0.0314	mg/L	0.0010	105	90	110			
Chromium		0.0618	mg/L	0.0010	103	90	110			
Cobalt		0.0622	mg/L	0.0010	104	90	110			
Copper		0.0632	mg/L	0.0010	105	90	110			
Iron		0.321	mg/L	0.0010	107	90	110			
Lead		0.0604	mg/L	0.0010	101	90	110			
Nickel		0.0629	mg/L	0.0010	105	90	110			
Selenium		0.0616	mg/L	0.0010	103	90	110			
Silver		0.0301	mg/L	0.0010	100	90	110			
Thallium		0.0604	mg/L	0.0010	101	90	110			
Vanadium		0.0615	mg/L	0.0010	103	90	110			
Zinc		0.0639	mg/L	0.0010	106	90	110			
Method: SW6020									Batch: R110927	
Lab ID: ICB	16	Method Blank				Run: ICPMS204-B_151110B			11/10/15 14:39	
Antimony		ND	mg/L	4E-05						
Arsenic		ND	mg/L	6E-05						
Barium		0.0002	mg/L	8E-05						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	3E-05						
Cobalt		ND	mg/L	3E-05						
Copper		ND	mg/L	6E-05						
Iron		0.002	mg/L	0.0006						
Lead		ND	mg/L	3E-05						
Nickel		ND	mg/L	3E-05						
Selenium		ND	mg/L	4E-05						
Silver		ND	mg/L	3E-05						
Thallium		ND	mg/L	1E-05						
Vanadium		9E-05	mg/L	3E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: R110927
Lab ID: ICB	16	Method Blank				Run: ICPMS204-B_151110B				11/10/15 14:39
Zinc		0.001	mg/L	0.0001						
Lab ID: LFB	16	Laboratory Fortified Blank				Run: ICPMS204-B_151110B				11/10/15 14:42
Antimony		0.0504	mg/L	0.0010	101	80	120			
Arsenic		0.0505	mg/L	0.0010	101	80	120			
Barium		0.0514	mg/L	0.0010	102	80	120			
Beryllium		0.0507	mg/L	0.0010	101	80	120			
Cadmium		0.0514	mg/L	0.0010	103	80	120			
Chromium		0.0510	mg/L	0.0010	102	80	120			
Cobalt		0.0515	mg/L	0.0010	103	80	120			
Copper		0.0510	mg/L	0.0010	102	80	120			
Iron		0.156	mg/L	0.0010	103	80	120			
Lead		0.0507	mg/L	0.0010	101	80	120			
Nickel		0.0510	mg/L	0.0010	102	80	120			
Selenium		0.0502	mg/L	0.0010	100	80	120			
Silver		0.0195	mg/L	0.0010	97	80	120			
Thallium		0.0507	mg/L	0.0010	101	80	120			
Vanadium		0.0498	mg/L	0.0010	99	80	120			
Zinc		0.0532	mg/L	0.0010	104	80	120			
Lab ID: MB-31098	16	Method Blank				Run: ICPMS204-B_151110B				11/11/15 01:12
Antimony		6E-05	mg/L	4E-05						
Arsenic		ND	mg/L	6E-05						
Barium		0.0002	mg/L	8E-05						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	2E-05						
Chromium		5E-05	mg/L	3E-05						
Cobalt		3E-05	mg/L	3E-05						
Copper		ND	mg/L	6E-05						
Iron		0.004	mg/L	0.0006						
Lead		3E-05	mg/L	3E-05						
Nickel		ND	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Silver		ND	mg/L	3E-05						
Thallium		3E-05	mg/L	1E-05						
Vanadium		0.0003	mg/L	3E-05						
Zinc		0.002	mg/L	0.0001						
Lab ID: H15100610-001BMS	16	Sample Matrix Spike				Run: ICPMS204-B_151110B				11/11/15 01:22
Antimony		0.0530	mg/L	0.0010	106	75	125			
Arsenic		0.0512	mg/L	0.0010	100	75	125			
Barium		0.0999	mg/L	0.050	107	75	125			
Beryllium		0.0557	mg/L	0.0010	111	75	125			
Cadmium		0.0509	mg/L	0.0010	102	75	125			
Chromium		0.0485	mg/L	0.0050	97	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020										Batch: R110927
Lab ID: H15100610-001BMS	16	Sample Matrix Spike				Run: ICPMS204-B_151110B				11/11/15 01:22
Cobalt		0.0484	mg/L	0.0050	96	75	125			
Copper		0.0470	mg/L	0.0050	94	75	125			
Iron		0.150	mg/L	0.020	97	75	125			
Lead		0.0496	mg/L	0.0010	99	75	125			
Nickel		0.0472	mg/L	0.0050	94	75	125			
Selenium		0.0485	mg/L	0.0010	97	75	125			
Silver		0.0193	mg/L	0.0010	97	75	125			
Thallium		0.0500	mg/L	0.00050	100	75	125			
Vanadium		0.0484	mg/L	0.010	97	75	125			
Zinc		0.0513	mg/L	0.010	96	75	125			
Lab ID: H15100610-001BMSD	16	Sample Matrix Spike Duplicate				Run: ICPMS204-B_151110B				11/11/15 01:25
Antimony		0.0529	mg/L	0.0010	106	75	125	0.3	20	
Arsenic		0.0507	mg/L	0.0010	99	75	125	0.9	20	
Barium		0.0977	mg/L	0.050	103	75	125	2.2	20	
Beryllium		0.0536	mg/L	0.0010	107	75	125	3.9	20	
Cadmium		0.0501	mg/L	0.0010	100	75	125	1.5	20	
Chromium		0.0481	mg/L	0.0050	96	75	125	0.8	20	
Cobalt		0.0477	mg/L	0.0050	94	75	125	1.5	20	
Copper		0.0463	mg/L	0.0050	93	75	125	1.4	20	
Iron		0.150	mg/L	0.020	96	75	125	0.5	20	
Lead		0.0494	mg/L	0.0010	99	75	125	0.4	20	
Nickel		0.0470	mg/L	0.0050	93	75	125	0.4	20	
Selenium		0.0481	mg/L	0.0010	96	75	125	0.7	20	
Silver		0.0200	mg/L	0.0010	100	75	125	3.5	20	
Thallium		0.0495	mg/L	0.00050	99	75	125	0.9	20	
Vanadium		0.0477	mg/L	0.010	95	75	125	1.5	20	
Zinc		0.0518	mg/L	0.010	97	75	125	1.1	20	
Lab ID: MB-31098	16	Method Blank				Run: ICPMS204-B_151110B				11/11/15 16:37
Antimony		0.0001	mg/L	4E-05						
Arsenic		ND	mg/L	6E-05						
Barium		0.0002	mg/L	8E-05						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	2E-05						
Chromium		ND	mg/L	3E-05						
Cobalt		ND	mg/L	3E-05						
Copper		0.0001	mg/L	6E-05						
Iron		0.004	mg/L	0.0006						
Lead		ND	mg/L	3E-05						
Nickel		4E-05	mg/L	3E-05						
Selenium		ND	mg/L	0.0002						
Silver		7E-05	mg/L	3E-05						
Thallium		2E-05	mg/L	1E-05						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Batch: R110927	
Lab ID: MB-31098	16	Method Blank				Run: ICPMS204-B_151110B			11/11/15 16:37	
Vanadium		0.0001	mg/L	3E-05						
Zinc		0.002	mg/L	0.0001						
Lab ID: H15100610-002BMS	16	Sample Matrix Spike				Run: ICPMS204-B_151110B			11/11/15 16:55	
Antimony		0.0489	mg/L	0.0010	97	75	125			
Arsenic		0.0519	mg/L	0.0010	104	75	125			
Barium		0.0844	mg/L	0.050	97	75	125			
Beryllium		0.0459	mg/L	0.0010	92	75	125			
Cadmium		0.0486	mg/L	0.0010	97	75	125			
Chromium		0.0504	mg/L	0.0050	101	75	125			
Cobalt		0.0508	mg/L	0.0050	101	75	125			
Copper		0.0500	mg/L	0.0050	100	75	125			
Iron		0.172	mg/L	0.020	100	75	125			
Lead		0.0499	mg/L	0.0010	100	75	125			
Nickel		0.0503	mg/L	0.0050	100	75	125			
Selenium		0.0518	mg/L	0.0010	104	75	125			
Silver		0.0191	mg/L	0.0010	95	75	125			E
Thallium		0.0502	mg/L	0.00050	100	75	125			
Vanadium		0.0499	mg/L	0.010	100	75	125			
Zinc		0.0527	mg/L	0.010	98	75	125			
Lab ID: H15100610-002BMSD	16	Sample Matrix Spike Duplicate				Run: ICPMS204-B_151110B			11/11/15 16:58	
Antimony		0.0496	mg/L	0.0010	99	75	125	1.4	20	
Arsenic		0.0522	mg/L	0.0010	104	75	125	0.5	20	
Barium		0.0849	mg/L	0.050	97	75	125	0.5	20	
Beryllium		0.0456	mg/L	0.0010	91	75	125	0.7	20	
Cadmium		0.0491	mg/L	0.0010	98	75	125	1.0	20	
Chromium		0.0503	mg/L	0.0050	101	75	125	0.1	20	
Cobalt		0.0501	mg/L	0.0050	100	75	125	1.3	20	
Copper		0.0499	mg/L	0.0050	100	75	125	0.3	20	
Iron		0.173	mg/L	0.020	101	75	125	0.3	20	
Lead		0.0492	mg/L	0.0010	98	75	125	1.4	20	
Nickel		0.0501	mg/L	0.0050	100	75	125	0.3	20	
Selenium		0.0518	mg/L	0.0010	104	75	125	0.0	20	
Silver		0.0195	mg/L	0.0010	98	75	125	2.4	20	E
Thallium		0.0497	mg/L	0.00050	99	75	125	0.9	20	
Vanadium		0.0503	mg/L	0.010	101	75	125	0.8	20	
Zinc		0.0523	mg/L	0.010	98	75	125	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R110718	
Lab ID: 110315_CCV_3	53	Continuing Calibration Verification Standard							11/03/15 13:26	
trans-1,4-Dichloro-2-butene		4.40	ug/L	0.50	88	70	130			
Acetone		44.0	ug/L	20	88	70	130			
Acrylonitrile		50.0	ug/L	20	100	70	130			
Benzene		5.40	ug/L	0.50	108	70	130			
Bromochloromethane		4.92	ug/L	0.50	98	70	130			
Bromodichloromethane		4.64	ug/L	0.50	93	70	130			
Bromoform		3.84	ug/L	0.50	77	70	130			
Bromomethane		5.84	ug/L	0.50	117	70	130			
Carbon disulfide		4.52	ug/L	0.50	90	70	130			
Carbon tetrachloride		5.20	ug/L	0.50	104	70	130			
Chlorobenzene		5.24	ug/L	0.50	105	70	130			
Chlorodibromomethane		4.04	ug/L	0.50	81	70	130			
Chloroethane		5.40	ug/L	0.50	108	70	130			
Chloroform		4.88	ug/L	0.50	98	80	120			
Chloromethane		3.67	ug/L	0.50	73	70	130			
1,2-Dibromo-3-chloropropane		4.08	ug/L	0.50	82	70	130			
1,2-Dibromoethane		3.54	ug/L	0.50	71	70	130			
Dibromomethane		4.44	ug/L	0.50	89	70	130			
1,2-Dichlorobenzene		5.00	ug/L	0.50	100	70	130			
1,4-Dichlorobenzene		5.16	ug/L	0.50	103	70	130			
Dichlorodifluoromethane		5.00	ug/L	0.50	100	70	130			
1,1-Dichloroethane		5.36	ug/L	0.50	107	70	130			
1,2-Dichloroethane		5.00	ug/L	0.50	100	70	130			
1,1-Dichloroethene		5.88	ug/L	0.50	118	80	120			
cis-1,2-Dichloroethene		5.56	ug/L	0.50	111	70	130			
trans-1,2-Dichloroethene		5.68	ug/L	0.50	114	70	130			
1,2-Dichloropropane		4.84	ug/L	0.50	97	80	120			
cis-1,3-Dichloropropene		4.84	ug/L	0.50	97	70	130			
trans-1,3-Dichloropropene		4.72	ug/L	0.50	94	70	130			
Ethylbenzene		4.72	ug/L	0.50	94	80	120			
2-Hexanone		43.6	ug/L	20	87	70	130			
Iodomethane		5.20	ug/L	0.50	104	70	130			
Methyl ethyl ketone		50.8	ug/L	20	102	70	130			
Methyl isobutyl ketone		45.6	ug/L	20	91	70	130			
Methylene chloride		5.32	ug/L	0.50	106	70	130			
Styrene		5.28	ug/L	0.50	106	70	130			
1,1,1,2-Tetrachloroethane		4.96	ug/L	0.50	99	70	130			
1,1,2,2-Tetrachloroethane		4.20	ug/L	0.50	84	70	130			
Tetrachloroethene		4.80	ug/L	0.50	96	70	130			
Toluene		4.64	ug/L	0.50	93	80	120			
1,1,1-Trichloroethane		5.76	ug/L	0.50	115	70	130			
1,1,2-Trichloroethane		4.64	ug/L	0.50	93	70	130			
Trichloroethene		4.88	ug/L	0.50	98	70	130			
Trichlorofluoromethane		4.52	ug/L	0.50	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R110718	
Lab ID: 110315_CCV_3	53	Continuing Calibration Verification Standard							11/03/15 13:26	
1,2,3-Trichloropropane		4.80	ug/L	0.50	96	70	130			
Vinyl acetate		4.68	ug/L	0.50	94	70	130			
Vinyl chloride		5.12	ug/L	0.50	102	80	120			
m+p-Xylenes		10.5	ug/L	0.50	105	70	130			
o-Xylene		5.64	ug/L	0.50	113	70	130			
Surr: 1,2-Dichloroethane-d4				1.0	98	69	131			
Surr: Dibromofluoromethane				1.0	87	70	125			
Surr: p-Bromofluorobenzene				1.0	90	76	123			
Surr: Toluene-d8				1.0	89	80	119			
Method: SW8260B									Batch: R110718	
Lab ID: 110315_LCS_4	53	Laboratory Control Sample				Run: 1SATURN_151103A			11/03/15 14:08	
trans-1,4-Dichloro-2-butene		4.76	ug/L	0.50	95	67	132			
Acetone		45.6	ug/L	20	91	55	144			
Acrylonitrile		46.4	ug/L	20	93	63	134			
Benzene		5.68	ug/L	0.50	114	69	129			
Bromochloromethane		5.00	ug/L	0.50	100	72	125			
Bromodichloromethane		4.64	ug/L	0.50	93	71	122			
Bromoform		4.08	ug/L	0.50	82	65	130			
Bromomethane		5.84	ug/L	0.50	117	60	136			
Carbon disulfide		4.76	ug/L	0.50	95	71	135			
Carbon tetrachloride		5.20	ug/L	0.50	104	77	121			
Chlorobenzene		5.48	ug/L	0.50	110	78	120			
Chlorodibromomethane		4.04	ug/L	0.50	81	70	122			
Chloroethane		5.68	ug/L	0.50	114	62	135			
Chloroform		4.84	ug/L	0.50	97	71	121			
Chloromethane		3.70	ug/L	0.50	74	66	139			
1,2-Dibromo-3-chloropropane		4.48	ug/L	0.50	90	59	130			
1,2-Dibromoethane		3.62	ug/L	0.50	72	60	137			
Dibromomethane		4.60	ug/L	0.50	92	69	122			
1,2-Dichlorobenzene		5.32	ug/L	0.50	106	74	122			
1,4-Dichlorobenzene		5.76	ug/L	0.50	115	75	122			
Dichlorodifluoromethane		4.76	ug/L	0.50	95	57	144			
1,1-Dichloroethane		5.48	ug/L	0.50	110	76	125			
1,2-Dichloroethane		5.60	ug/L	0.50	112	69	131			
1,1-Dichloroethene		5.68	ug/L	0.50	114	67	129			
cis-1,2-Dichloroethene		5.36	ug/L	0.50	107	75	122			
trans-1,2-Dichloroethene		5.48	ug/L	0.50	110	75	124			
1,2-Dichloropropane		4.88	ug/L	0.50	98	75	127			
cis-1,3-Dichloropropene		4.88	ug/L	0.50	98	73	124			
trans-1,3-Dichloropropene		4.60	ug/L	0.50	92	72	127			
Ethylbenzene		5.04	ug/L	0.50	101	74	125			
2-Hexanone		44.4	ug/L	20	89	70	128			
Iodomethane		4.32	ug/L	0.50	86	52	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R110718
Lab ID: 110315_LCS_4	53	Laboratory Control Sample				Run: 1SATURN_151103A				11/03/15 14:08
Methyl ethyl ketone		48.8	ug/L	20	98	56	141			
Methyl isobutyl ketone		48.8	ug/L	20	98	71	121			
Methylene chloride		5.60	ug/L	0.50	112	61	125			
Styrene		5.64	ug/L	0.50	113	75	120			
1,1,1,2-Tetrachloroethane		5.20	ug/L	0.50	104	76	122			
1,1,2,2-Tetrachloroethane		4.28	ug/L	0.50	86	67	124			
Tetrachloroethene		5.12	ug/L	0.50	102	75	126			
Toluene		4.92	ug/L	0.50	98	73	122			
1,1,1-Trichloroethane		5.72	ug/L	0.50	114	76	124			
1,1,2-Trichloroethane		4.80	ug/L	0.50	96	72	125			
Trichloroethene		5.00	ug/L	0.50	100	72	126			
Trichlorofluoromethane		5.80	ug/L	0.50	116	73	131			
1,2,3-Trichloropropane		5.32	ug/L	0.50	106	58	142			
Vinyl acetate		5.16	ug/L	0.50	103	47	154			
Vinyl chloride		4.76	ug/L	0.50	95	69	129			
m+p-Xylenes		11.0	ug/L	0.50	110	72	124			
o-Xylene		5.76	ug/L	0.50	115	74	123			
Surr: 1,2-Dichloroethane-d4				1.0	97	69	131			
Surr: Dibromofluoromethane				1.0	89	70	125			
Surr: p-Bromofluorobenzene				1.0	94	76	123			
Surr: Toluene-d8				1.0	94	80	119			
Lab ID: 110315_MBLK_6	53	Method Blank				Run: 1SATURN_151103A				11/03/15 15:14
trans-1,4-Dichloro-2-butene		ND	ug/L	0.50						
Acetone		ND	ug/L	20						
Acrylonitrile		ND	ug/L	20						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	0.50						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	0.50						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						
1,4-Dichlorobenzene		ND	ug/L	0.50						
Dichlorodifluoromethane		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R110718
Lab ID: 110315_MBLK_6	53 Method Blank					Run: 1SATURN_151103A				11/03/15 15:14
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.50						
trans-1,3-Dichloropropene		ND	ug/L	0.50						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	20						
Iodomethane		ND	ug/L	0.50						
Methyl ethyl ketone		ND	ug/L	20						
Methyl isobutyl ketone		ND	ug/L	20						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.50						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						
1,2,3-Trichloropropane		ND	ug/L	0.50						
Vinyl acetate		ND	ug/L	0.50						
Vinyl chloride		ND	ug/L	0.50						
m+p-Xylenes		ND	ug/L	0.50						
o-Xylene		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				1.0	100	69	131			
Surr: Dibromofluoromethane				1.0	93	70	125			
Surr: p-Bromofluorobenzene				1.0	90	76	123			
Surr: Toluene-d8				1.0	87	80	119			
Lab ID: H15100610-004CMS	53 Sample Matrix Spike					Run: 1SATURN_151103A				11/03/15 21:53
trans-1,4-Dichloro-2-butene		8.48	ug/L	1.0	85	67	132			
Acetone		84.8	ug/L	40	85	55	144			
Acrylonitrile		89.6	ug/L	40	90	63	134			
Benzene		11.7	ug/L	1.0	112	69	129			
Bromochloromethane		10.0	ug/L	1.0	100	72	125			
Bromodichloromethane		9.20	ug/L	1.0	92	71	122			
Bromoform		6.91	ug/L	1.0	69	65	130			
Bromomethane		11.3	ug/L	1.0	113	60	136			
Carbon disulfide		9.84	ug/L	1.0	98	71	135			
Carbon tetrachloride		10.6	ug/L	1.0	106	77	121			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R110718
Lab ID: H15100610-004CMS	53	Sample Matrix Spike				Run: 1SATURN_151103A				11/03/15 21:53
Chlorobenzene		10.9	ug/L	1.0	109	78	120			
Chlorodibromomethane		8.08	ug/L	1.0	81	70	122			
Chloroethane		12.4	ug/L	1.0	124	62	135			
Chloroform		9.52	ug/L	1.0	95	71	121			
Chloromethane		7.33	ug/L	1.0	73	66	139			
1,2-Dibromo-3-chloropropane		7.65	ug/L	1.0	76	59	130			
1,2-Dibromoethane		7.27	ug/L	1.0	73	60	137			
Dibromomethane		8.72	ug/L	1.0	87	69	122			
1,2-Dichlorobenzene		9.76	ug/L	1.0	98	74	122			
1,4-Dichlorobenzene		10.3	ug/L	1.0	103	75	122			
Dichlorodifluoromethane		9.20	ug/L	1.0	92	57	144			
1,1-Dichloroethane		11.0	ug/L	1.0	110	76	125			
1,2-Dichloroethane		9.84	ug/L	1.0	98	69	131			
1,1-Dichloroethene		11.4	ug/L	1.0	114	67	129			
cis-1,2-Dichloroethene		22.8	ug/L	1.0	98	75	122			
trans-1,2-Dichloroethene		11.1	ug/L	1.0	111	75	124			
1,2-Dichloropropane		10.2	ug/L	1.0	102	75	127			
cis-1,3-Dichloropropene		9.76	ug/L	1.0	98	73	124			
trans-1,3-Dichloropropene		8.56	ug/L	1.0	86	72	127			
Ethylbenzene		11.0	ug/L	1.0	101	74	125			
2-Hexanone		91.2	ug/L	40	91	70	128			
Iodomethane		8.88	ug/L	1.0	89	52	130			
Methyl ethyl ketone		85.6	ug/L	40	86	56	141			
Methyl isobutyl ketone		87.2	ug/L	40	87	71	121			
Methylene chloride		9.84	ug/L	1.0	98	61	125			
Styrene		12.2	ug/L	1.0	106	75	120			
1,1,1,2-Tetrachloroethane		10.4	ug/L	1.0	104	76	122			
1,1,2,2-Tetrachloroethane		7.49	ug/L	1.0	75	67	124			
Tetrachloroethene		10.8	ug/L	1.0	108	75	126			
Toluene		10.2	ug/L	1.0	102	73	122			
1,1,1-Trichloroethane		11.3	ug/L	1.0	113	76	124			
1,1,2-Trichloroethane		9.68	ug/L	1.0	97	72	125			
Trichloroethene		10.2	ug/L	1.0	101	72	126			
Trichlorofluoromethane		11.4	ug/L	1.0	114	73	131			
1,2,3-Trichloropropane		10.2	ug/L	1.0	102	58	142			
Vinyl acetate		10.2	ug/L	1.0	102	47	154			
Vinyl chloride		9.68	ug/L	1.0	93	69	129			
m+p-Xylenes		22.5	ug/L	1.0	111	72	124			
o-Xylene		12.0	ug/L	1.0	120	74	123			
Surr: 1,2-Dichloroethane-d4				2.0	102	69	131			
Surr: Dibromofluoromethane				2.0	85	70	125			
Surr: p-Bromofluorobenzene				2.0	91	76	123			
Surr: Toluene-d8				2.0	92	80	119			

- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R110718
Lab ID: H15100610-004CMSD	53	Sample Matrix Spike Duplicate				Run: 1SATURN_151103A				11/03/15 22:22
trans-1,4-Dichloro-2-butene		8.56	ug/L	1.0	86	67	132	0.9	20	
Acetone		82.4	ug/L	40	82	55	144	2.9	20	
Acrylonitrile		86.4	ug/L	40	86	63	134	3.6	20	
Benzene		11.2	ug/L	1.0	107	69	129	4.2	20	
Bromochloromethane		9.68	ug/L	1.0	97	72	125	3.3	20	
Bromodichloromethane		8.88	ug/L	1.0	89	71	122	3.5	20	
Bromoform		7.65	ug/L	1.0	76	65	130	10	20	
Bromomethane		11.4	ug/L	1.0	114	60	136	0.7	20	
Carbon disulfide		9.12	ug/L	1.0	91	71	135	7.6	20	
Carbon tetrachloride		9.84	ug/L	1.0	98	77	121	7.1	20	
Chlorobenzene		10.9	ug/L	1.0	109	78	120	0.0	20	
Chlorodibromomethane		7.98	ug/L	1.0	80	70	122	1.2	20	
Chloroethane		10.8	ug/L	1.0	108	62	135	14	20	
Chloroform		9.20	ug/L	1.0	92	71	121	3.4	20	
Chloromethane		6.90	ug/L	1.0	69	66	139	6.1	20	
1,2-Dibromo-3-chloropropane		8.16	ug/L	1.0	82	59	130	6.5	20	
1,2-Dibromoethane		7.08	ug/L	1.0	71	60	137	2.7	20	
Dibromomethane		8.56	ug/L	1.0	86	69	122	1.9	20	
1,2-Dichlorobenzene		9.84	ug/L	1.0	98	74	122	0.8	20	
1,4-Dichlorobenzene		10.6	ug/L	1.0	106	75	122	2.3	20	
Dichlorodifluoromethane		8.72	ug/L	1.0	87	57	144	5.4	20	
1,1-Dichloroethane		10.7	ug/L	1.0	107	76	125	2.9	20	
1,2-Dichloroethane		10.2	ug/L	1.0	102	69	131	4.0	20	
1,1-Dichloroethene		10.8	ug/L	1.0	108	67	129	5.1	20	
cis-1,2-Dichloroethene		21.7	ug/L	1.0	87	75	122	5.0	20	
trans-1,2-Dichloroethene		10.6	ug/L	1.0	106	75	124	5.2	20	
1,2-Dichloropropane		10.2	ug/L	1.0	102	75	127	0.0	20	
cis-1,3-Dichloropropene		9.44	ug/L	1.0	94	73	124	3.3	20	
trans-1,3-Dichloropropene		8.64	ug/L	1.0	86	72	127	0.9	20	
Ethylbenzene		11.0	ug/L	1.0	101	74	125	0.0	20	
2-Hexanone		84.0	ug/L	40	84	70	128	8.2	20	
Iodomethane		8.32	ug/L	1.0	83	52	130	6.5	20	
Methyl ethyl ketone		83.2	ug/L	40	83	56	141	2.8	20	
Methyl isobutyl ketone		92.8	ug/L	40	93	71	121	6.2	20	
Methylene chloride		10.0	ug/L	1.0	100	61	125	1.6	20	
Styrene		11.7	ug/L	1.0	101	75	120	4.7	20	
1,1,1,2-Tetrachloroethane		10.3	ug/L	1.0	103	76	122	0.8	20	
1,1,2,2-Tetrachloroethane		8.08	ug/L	1.0	81	67	124	7.6	20	
Tetrachloroethene		10.6	ug/L	1.0	106	75	126	2.2	20	
Toluene		9.76	ug/L	1.0	98	73	122	4.0	20	
1,1,1-Trichloroethane		10.9	ug/L	1.0	109	76	124	3.6	20	
1,1,2-Trichloroethane		10.0	ug/L	1.0	100	72	125	3.3	20	
Trichloroethene		10.6	ug/L	1.0	105	72	126	3.8	20	
Trichlorofluoromethane		10.8	ug/L	1.0	108	73	131	5.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 11/12/15
Project: Mister M Landfill
Work Order: H15100610

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R110718	
Lab ID: H15100610-004CMSD	53	Sample Matrix Spike Duplicate				Run: 1SATURN_151103A			11/03/15 22:22	
1,2,3-Trichloropropane		10.7	ug/L	1.0	107	58	142	4.6	20	
Vinyl acetate		9.92	ug/L	1.0	99	47	154	2.4	20	
Vinyl chloride		9.36	ug/L	1.0	89	69	129	3.4	20	
m+p-Xylenes		22.2	ug/L	1.0	110	72	124	1.1	20	
o-Xylene		11.7	ug/L	1.0	117	74	123	2.7	20	
Surr: 1,2-Dichloroethane-d4				2.0	98	69	131			
Surr: Dibromofluoromethane				2.0	86	70	125			
Surr: p-Bromofluorobenzene				2.0	94	76	123			
Surr: Toluene-d8				2.0	95	80	119			

- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

MT-DEQ Solid Waste Section

H15100610

Login completed by: Amanda B. Carlson
Date Received: 10/30/2015

Reviewed by: BL2000\rwilliams
Received by: wjj

Reviewed Date: 11/2/2015
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	4.7°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	Not Applicable ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Samples for Dissolved Metals were subsampled, filtered, and preserved to pH <2 with 2 mL of Nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection. Collection time on sample containers for sample MW-I2 is 12:20, COC is 12:10. Used collection time on COC. Sample MW9r a 250mL H2SO4 container was received; however Nitrate+Nitrite analysis was not requested on COC. Emailed J.Collins regarding requested analysis to verify. abc 10/30/15

Per J. Collins, analyze sample MW9r for N+N. abc 11/2/15

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MT-DEQ Solid Waste program	Mister M Landfill	State: MT	Yes ☑ No ☐
Report Mail Address (Required):	**Contact Name:** / **Phone/Fax:**	**Cell:**	**Sampler: (Please Print)**
☑ No Hard Copy Email:	John Collins 406 444-2802		John Collins
Invoice Address (Required):	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**
on file ☑ No Hard Copy Email:	SAR		

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☑ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	8260 B (VOC's)	6010.20 metals	Nitrate+Nitrite	E300 (Cl, SO4)	pH	(undissolved) Fe, Mn (dissolved)	SEE ATTACHED	Standard Turnaround (TAT)
1 mw-12	10-29-15	12:10	GW	✓	✓	✓	✓	✓	✓		
2 mw-11	10-29-15	13:10	GW	✓	✓	✓	✓	✓	✓		
3 mw-9r	10-29-15	13:50	GW	✓			✓	✓	✓ ✓		
4 mw-0W	10-29-15	14:30	GW	✓			✓	✓	✓ ✓		
5 mw-HW	10-29-15	15:45	GW	✓	✓	✓	✓	✓	✓		
6 mw-HW Dup.	10-29-15	15:45	GW	✓	✓	✓	✓	✓	✓		
7											
8											
9											
10											

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: please filter for diss. metals

Shipped by: hand del
Cooler ID(s): Y
Receipt Temp 4.7 °C TB
On Ice: Y N
Custody Seal On Bottle Y N / On Cooler Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY L15100410

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	10/30/15 - 13:15				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: ✓

Received by Laboratory: Wanda | **Date/Time:** 10-30-15 13:15 | **Signature:**

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Table 1: Analytical Parameters

# of Samples				
	Inorganics			
6	***Chloride***	***Sulfate***	***pH***	***Specific conductance***
5	**Nitrate + Nitrite (as N)**			
	Dissolved Metals			
4	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)
	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)
	Lead (Pb)	Nickel (Ni)	Selenium (Se)	Silver (Ag)
	Thallium (Th)	Vanadium (V)		
5	*Iron (Fe)*	*Zinc (Zn)*		

6 Volatile Organic Compounds (VOCs by EPA method 8260)

Acetone	***Acrylonitrile***
Benzene	***Bromochloromethane***
Bromodichloromethane	***Bromoform***
Bromomethane (Methyl bromide)	***Carbon disulfide***
Carbon tetrachloride	***Chlorobenzene***
Chlorodibromomethane	***Chloroethane***
Chloroform	***Chloromethane (Methyl chloride)***
1,2-Dibromo-3-chloropropane (DCBP)	***1,2-Dibromoethane (EDB)***
Dibromomethane (Methylene bromide)	***1,2-Dichlorobenzene***
1,4-Dichlorobenzene	***trans-1,4-Dichloro-2-butene***
1,1-Dichloroethane	***1,2-Dichloroethane***
1,1-Dichloroethene	***cis-1,2-Dichloroethene***
trans-1,2-Dichloroethene	***Dichlorodifluoromethane***
1,2-Dichloropropane	***cis-1,3-Dichloropropene***
trans-1,3-Dichloropropene	***Ethylbenzene***
2-Hexanone (Methyl butyl ketone)	***Iodomethane (Methyl iodide)***
Methylene chloride	***Methyl ethyl ketone (MEK)***
4-Methyl-2-pentanone (Metyl isobutyl ketone)	***Styrene***
1,1,1,2-Tetrachloroethane	***1,1,2,2-Tetrachloroethane***
Tetrachloroethene	***Toluene***
1,1,1-Trichloroethane	***1,1,2-Trichloroethane***
Trichloroethene	***Trichlorofluoromethane***
1,2,3-Trichloropropane	***Vinyl acetate***
Vinyl chloride	***Total Xylenes***

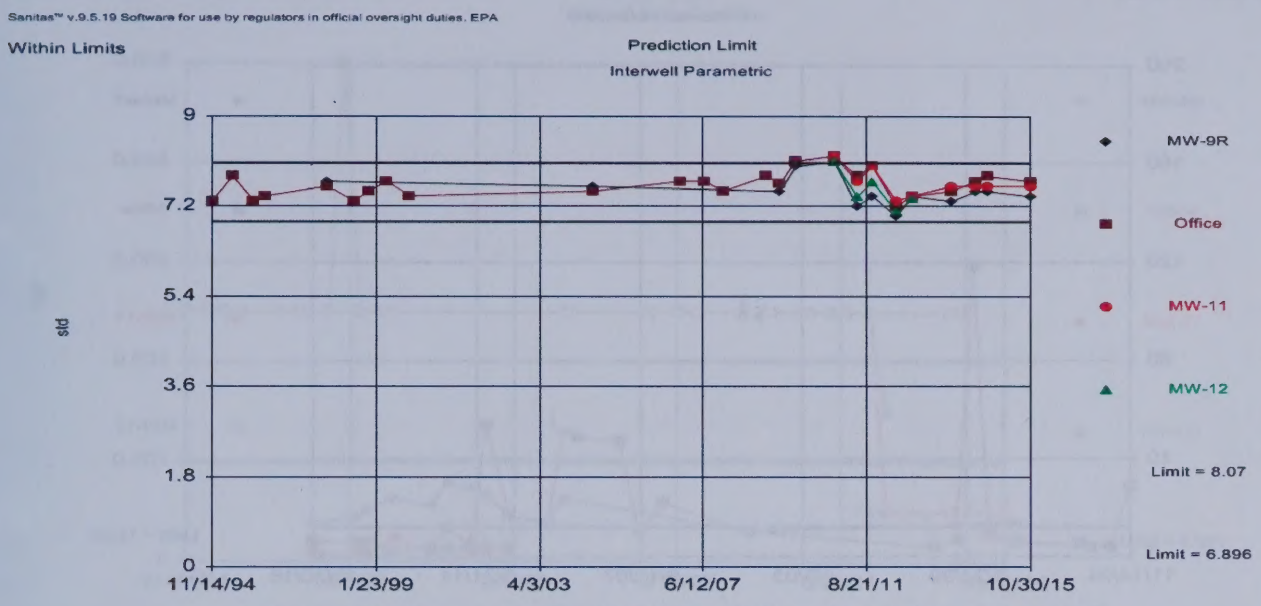
APPENDIX B: RESULTS OF STATISTICAL ANALYSES

Table 1: Summary of Results of Statistical Analyses for October 2015 Data

		Prediction Interval Analysis					Trend Analysis	
Parameter	**Well**	**Distribution**	**Confidence Level (%)**	**Prediction Limit(s)**	**Result**	**Exceeds Limit?**	**Slope (per yr)**	**Significant ?**
pH	MW-9R	normal	98	6.89-8.07	7.4	No	-0.02	No
	MW-11	normal	98	6.89-8.07	7.6	No	-0.07	No
	MW-12	normal	98	6.89-8.07	7.4	No	-0.35	No
	MW-OW	normal	98	6.89-8.07	7.7	No	0.01	No
SC	MW-9R	N/A	98	867.6	1010	Yes	14.14	Yes
	MW-11	normal	98	867.6	667	No	5.7	No
	MW-12	normal	98	867.6	718	No	11.68	No
	MW-OW	normal	98	867.6	623	No	-3.81	Yes
Chloride	MW-9R	normal	98	12.41	14	No	0.46	No
	MW-11	normal	98	12.41	2	No	0	No
	MW-12	normal	98	12.41	2	No	-0.74	No
	MW-OW	normal	98	12.41	6	No	0.004	No
Sulfate	MW-9R	non-normal	98	107	71	No	-2.36	Yes
	MW-11	normal	98	107	45	No	0.84	No
	MW-12	normal	98	107	36	No	0.54	No
	MW-OW	normal	98	107	4	No	-0.09	Yes
Nitrate+Nitrite	MW-9R	normal	98	0.44	1.52	Yes	-0.27	Yes
Iron	MW-11	normal	98	0.75	-0.25	No	0.04	No
	MW-12	N/A	N/A	0.75	*ND*			
	MW-OW	non-normal	98	0.75	*ND*	No	0.01	No
Zinc	MW-12	normal	98	0.09	*ND*	No	0	No
	MW-OW	normal	98	0.09	*0.555*	Yes	0.03	Yes
cis-1,2-Dichloroethene	MW-9R	non-normal	98	N/A	13	N/A	0.35	No
	MW-OW	non-normal	98	N/A	10	N/A	0.08	Yes
Ethyl benzene	MW-OW	normal	98	N/A	0.34	No	0.02	No
	MW-9R	normal			0.97		-0.01	Yes
Styrene	MW-OW	normal	98	N/A	0.6	No	0.02	No
Tetrachloroethene	MW-9R	normal	98	N/A	0.44	No	-0.01	No
Vinly Chloride	MW-OW				0.42			

Notes:
N/A = Not analyzed
ND = Non-detect
N/A = Not applicable

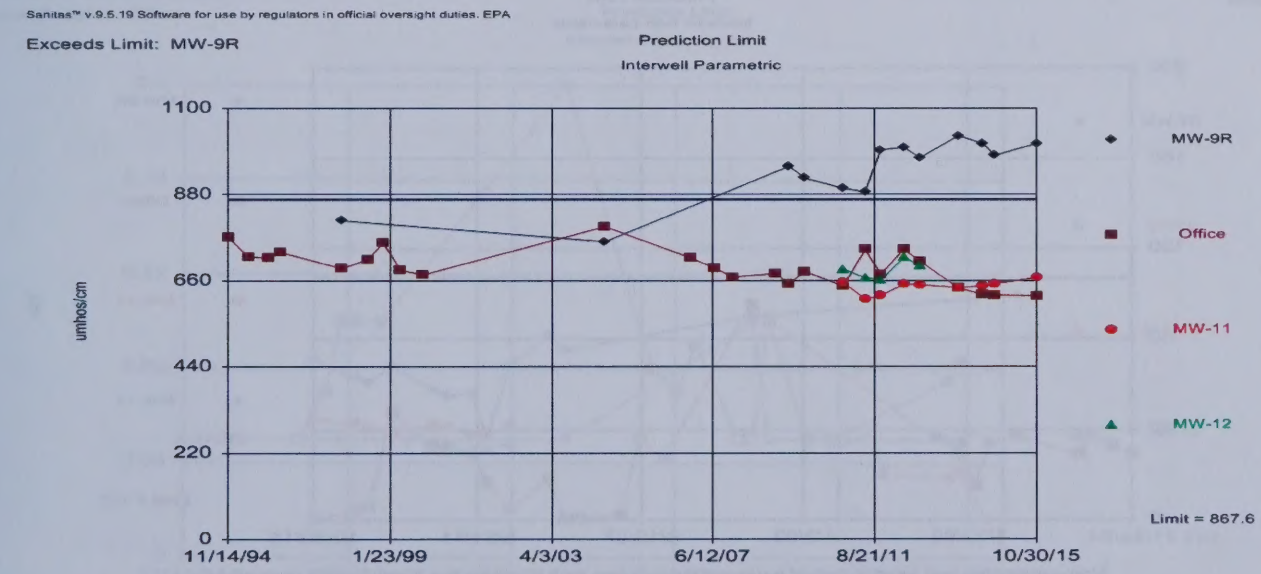
Figure F-1: Prediction Limit Analysis for pH



Background Data Summary: Mean=7.483, Std. Dev.=0.2141, n=26. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9733, critical = 0.92. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 11/16/2015 9:34 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-2: Prediction Limit Analysis for Conductivity



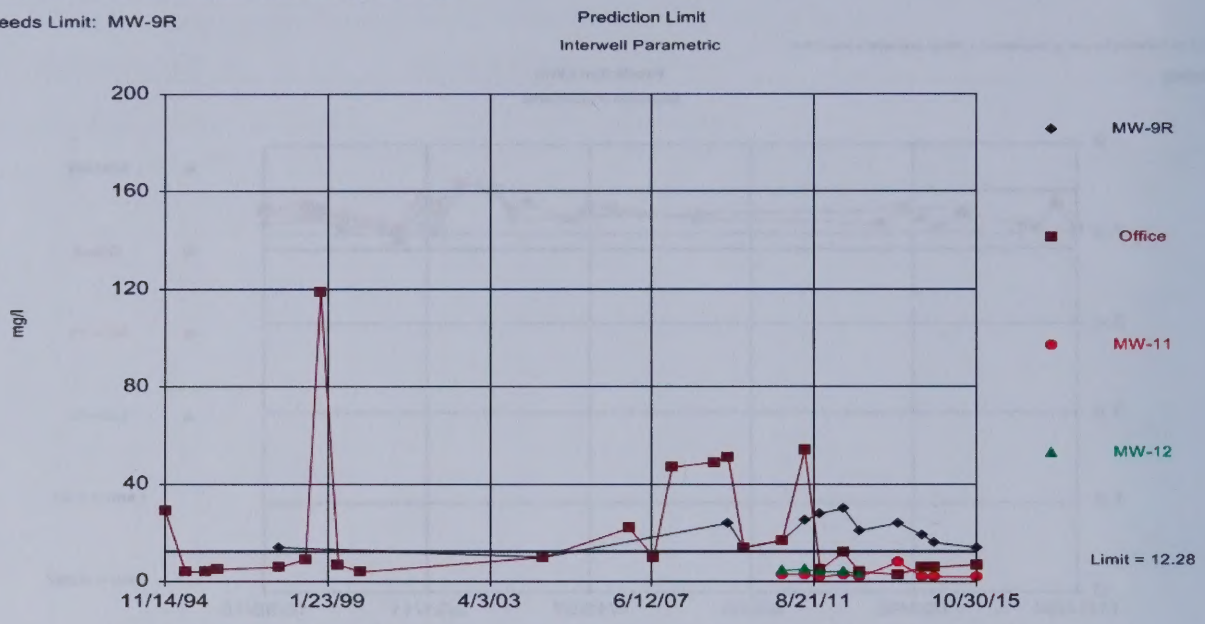
Background Data Summary: Mean=768.5, Std. Dev.=40.79, n=26. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9532, critical = 0.92. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 11/16/2015 9:38 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-3: Prediction Limit Analysis for Chloride

Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R



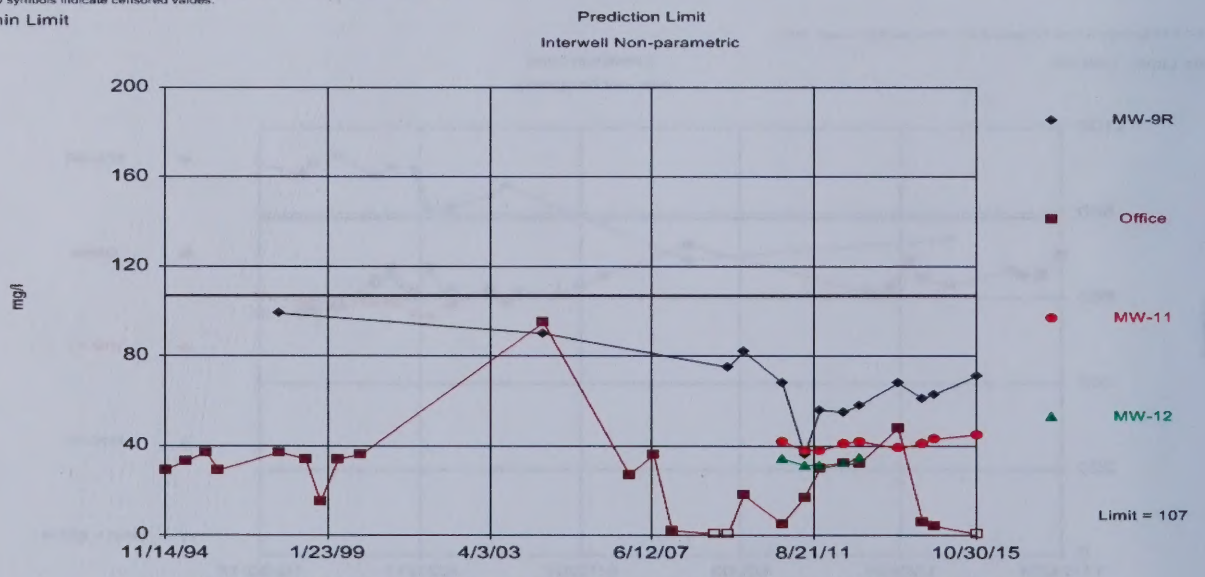
Background Data Summary: Mean=6.692, Std. Dev.=2.298, n=26. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9265, critical = 0.92. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 11/16/2015 9:41 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-4: Prediction Limit Analysis for Sulfate

Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

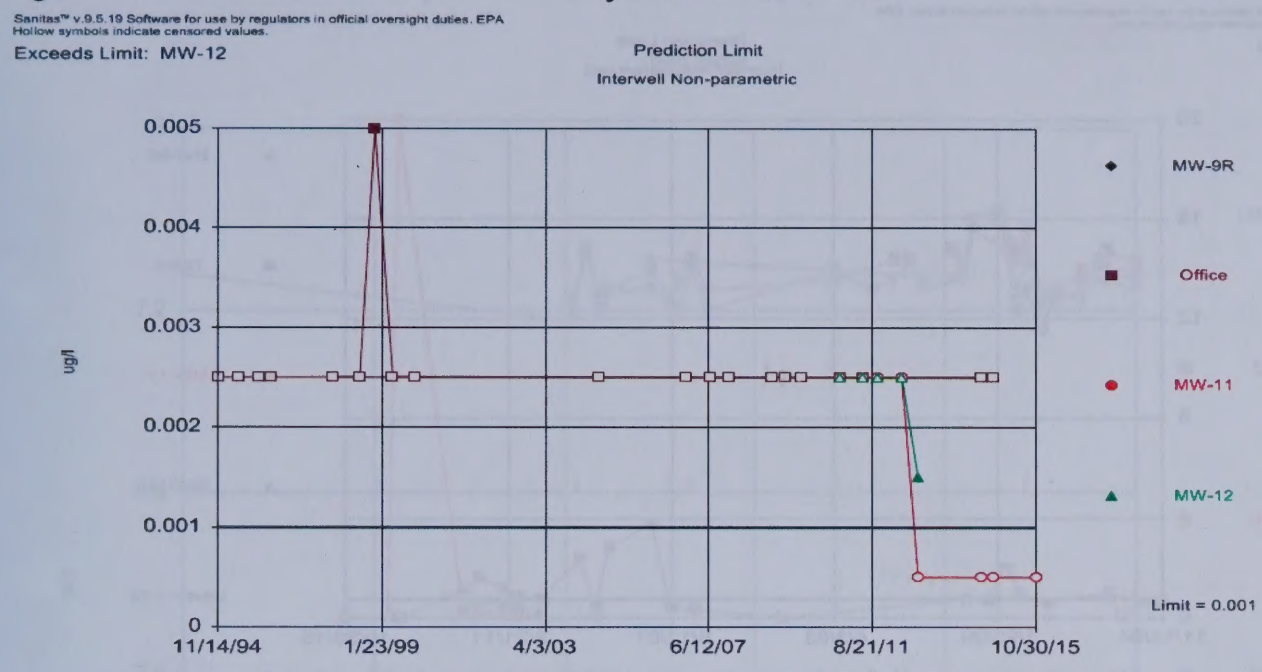
Within Limit



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 26 background values. Report alpha = 0.1333. Individual comparison alpha = 0.03514. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 11/16/2015 9:48 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

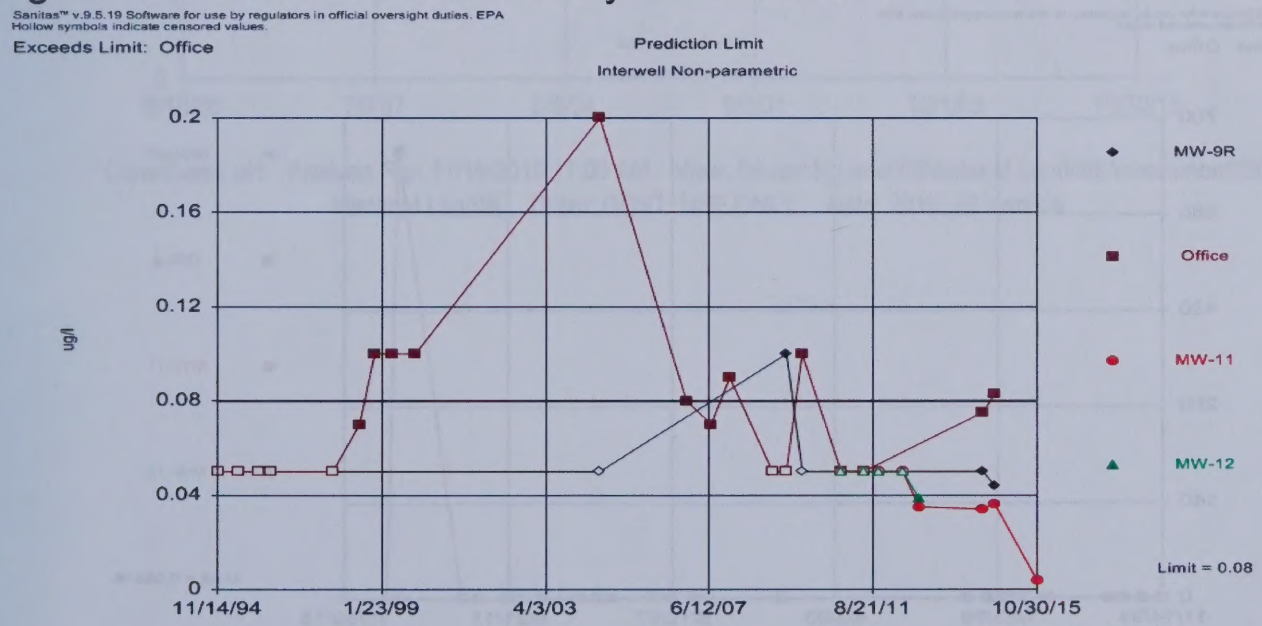
Figure F-5: Prediction Limit Analysis for Arsenic



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 25) were censored; limit is most recent reporting limit. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Arsenic Analysis Run 11/16/2015 9:52 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

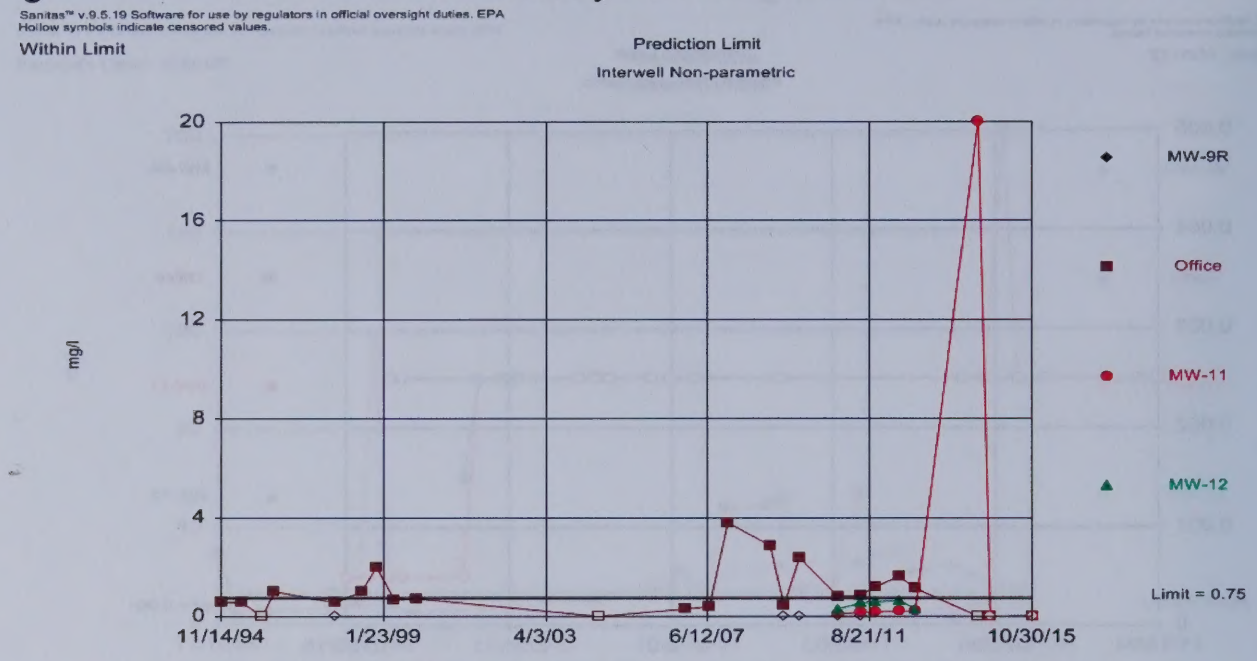
Figure F-6: Prediction Limit Analysis for Barium



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 64% NDs. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Barium Analysis Run 11/16/2015 10:42 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

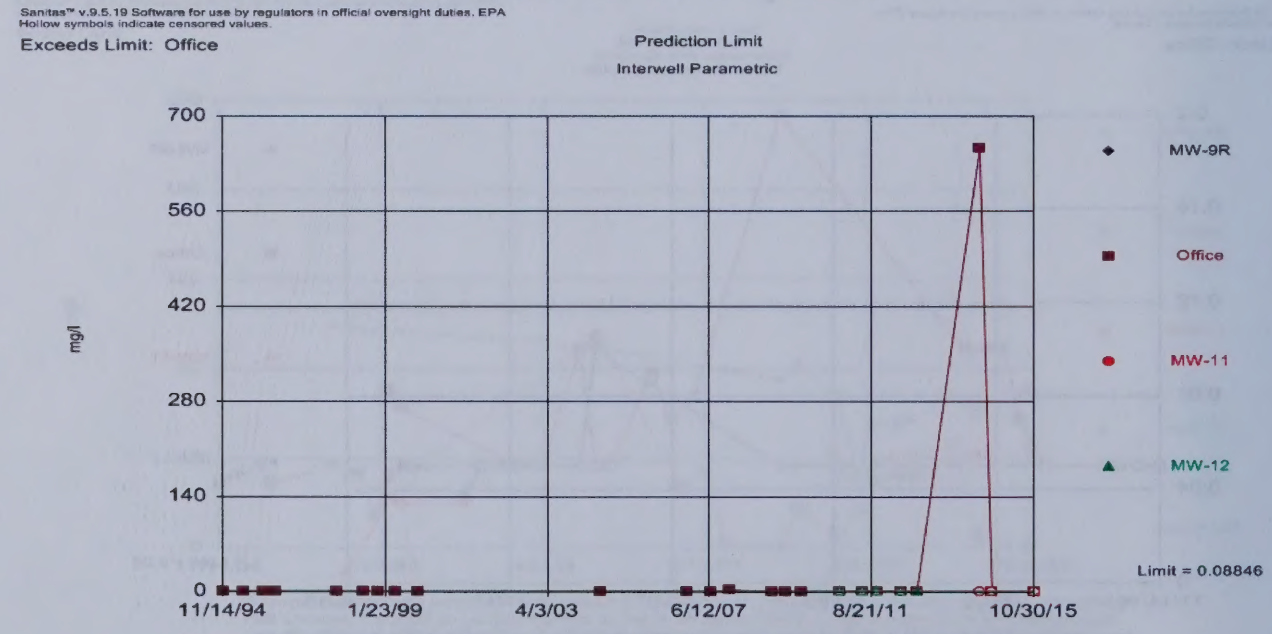
Figure F-7: Prediction Limit Analysis for Iron



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 26 background values. 73.08% NDs. Report alpha = 0.1333. Individual comparison alpha = 0.03514. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Iron Analysis Run 11/16/2015 10:44 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-8: Prediction Limit Analysis for Zinc



Background Data Summary (based on square root transformation): Mean=0.1737, Std. Dev.=0.05093, n=26, 3.846% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9575, critical = 0.92. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Zinc Analysis Run 11/16/2015 10:46 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-9: Trend Analysis for pH

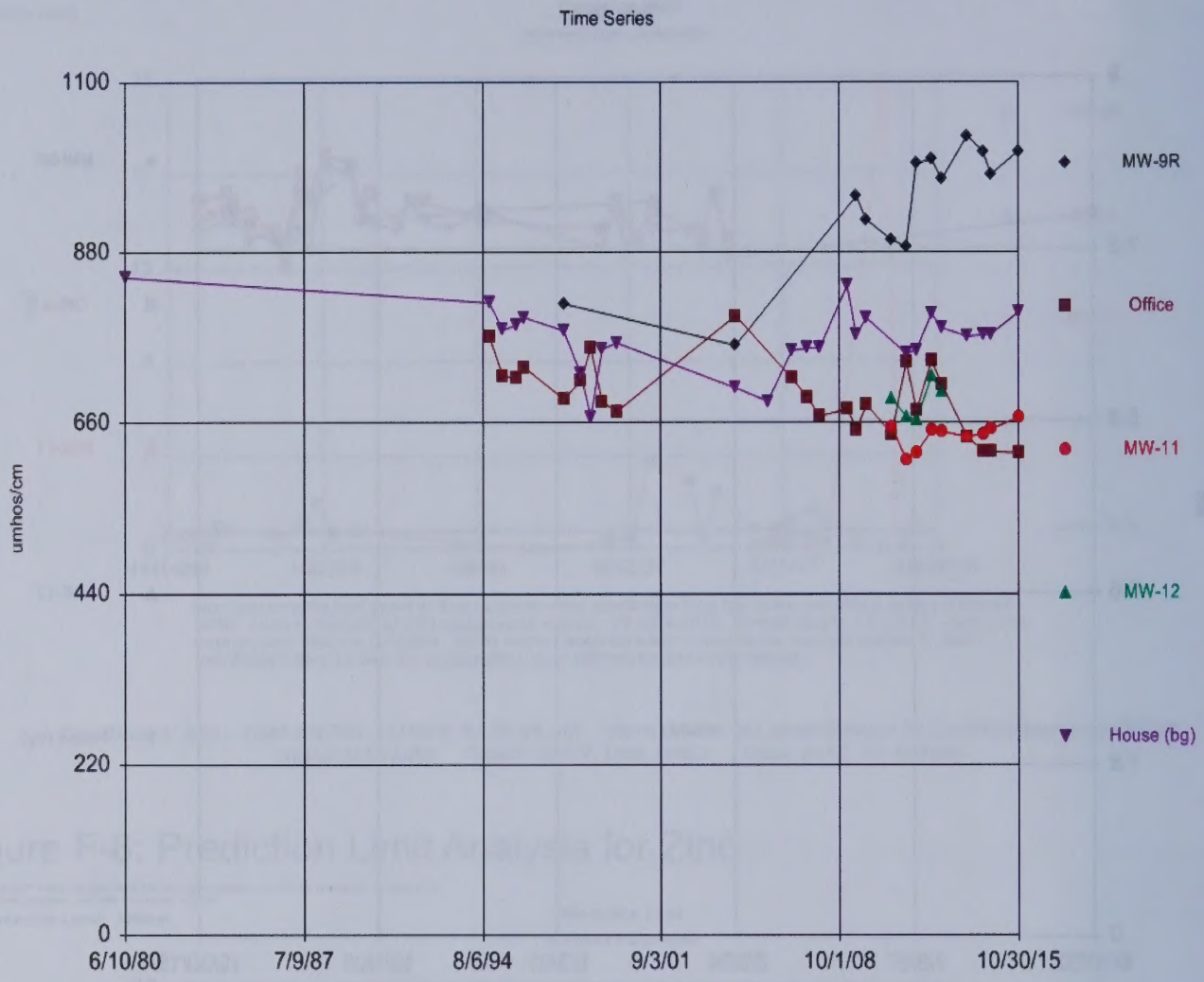
Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA



Constituent: pH Analysis Run 11/16/2015 11:09 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-10: Trend Analysis for Specific Conductance

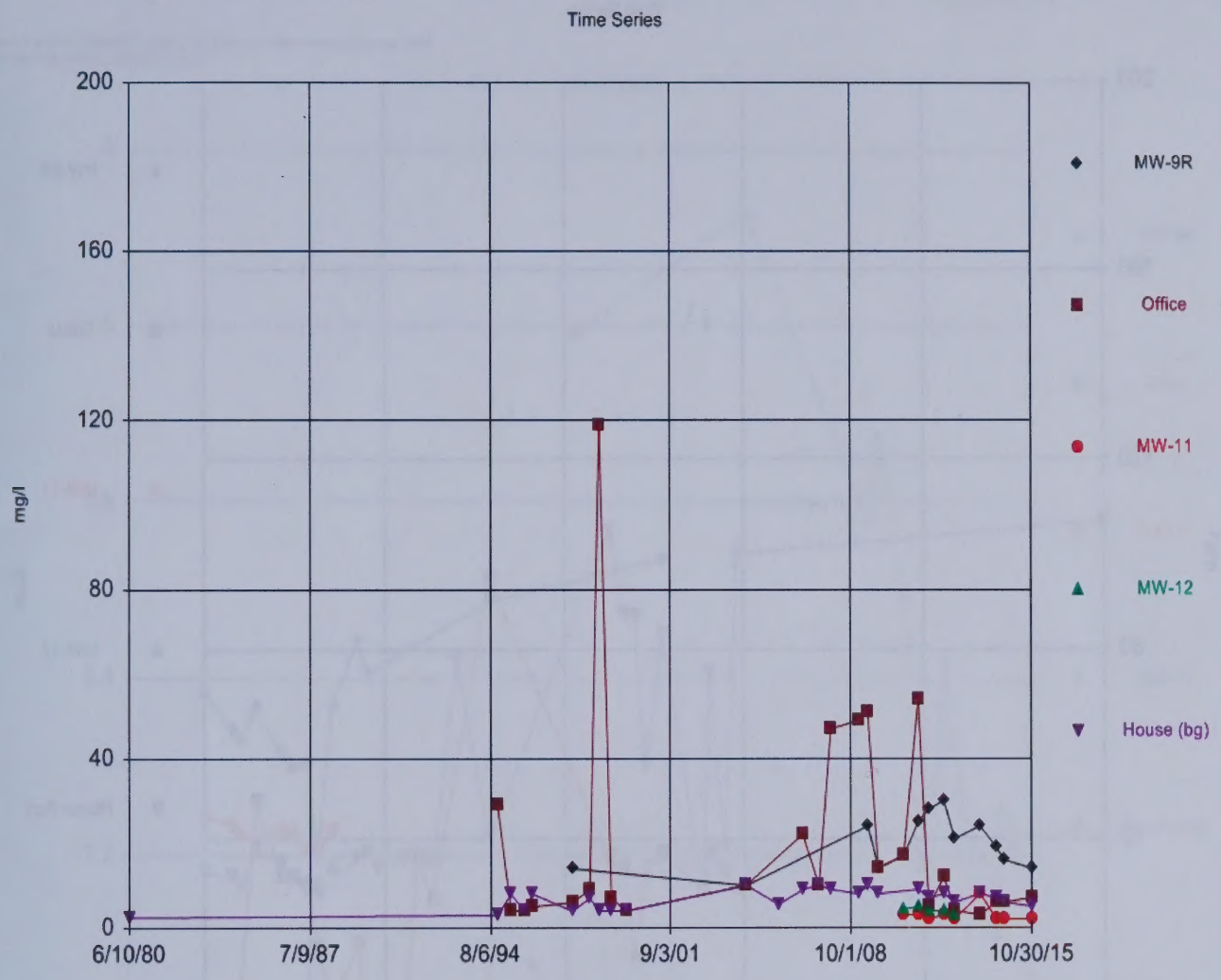
Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA



Constituent: SC Analysis Run 11/16/2015 11:11 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-11: Trend Analysis for Chloride

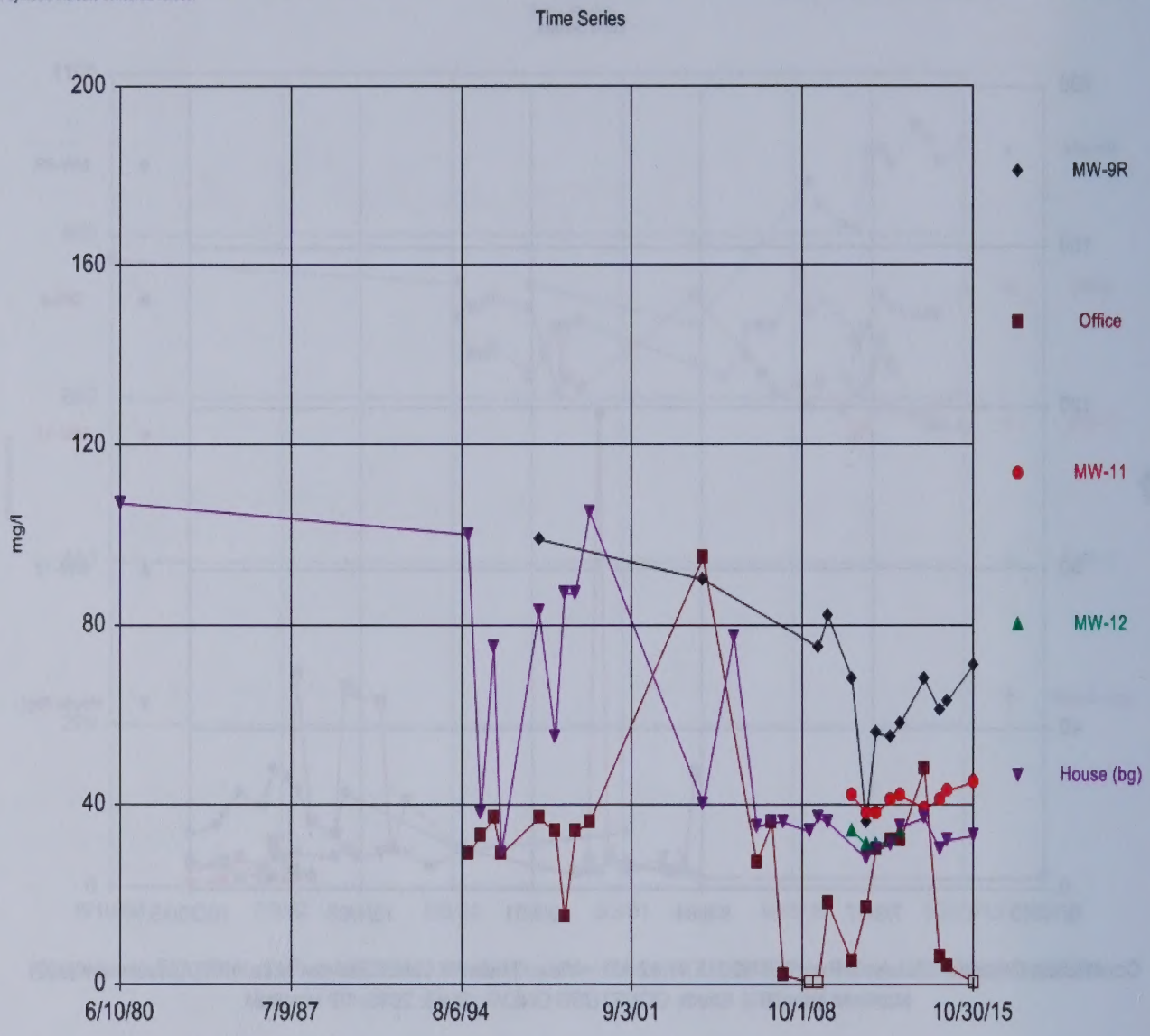
Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA



Constituent: Chloride Analysis Run 11/16/2015 11:12 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

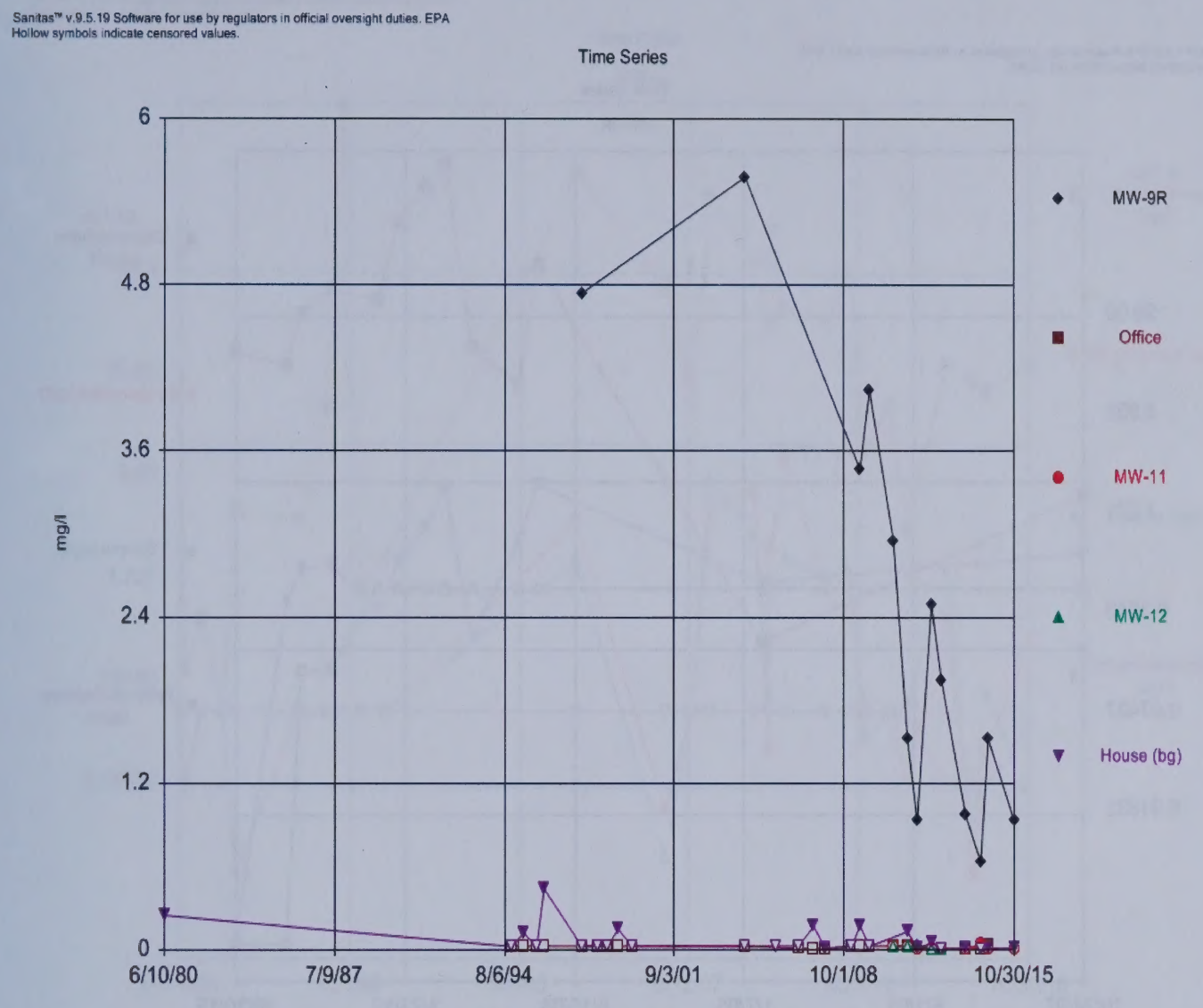
Figure F-12: Trend Analysis for Sulfate

Sanitas™ v.9.5.19 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.



Constituent: Sulfate Analysis Run 11/16/2015 11:13 AM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-13: Trend Analysis for Nitrate + Nitrite



Constituent: Nitrate+Nitrite Analysis Run 11/16/2015 12:27 PM View: [Mister M Landfill][Mister M Landfill][Assessment][302]
Mister M Landfill Client: GOVT. USE ONLY Data: 2015 10 sanitas

Figure F-14: Trend Analysis for selected VOC's in MW-9R

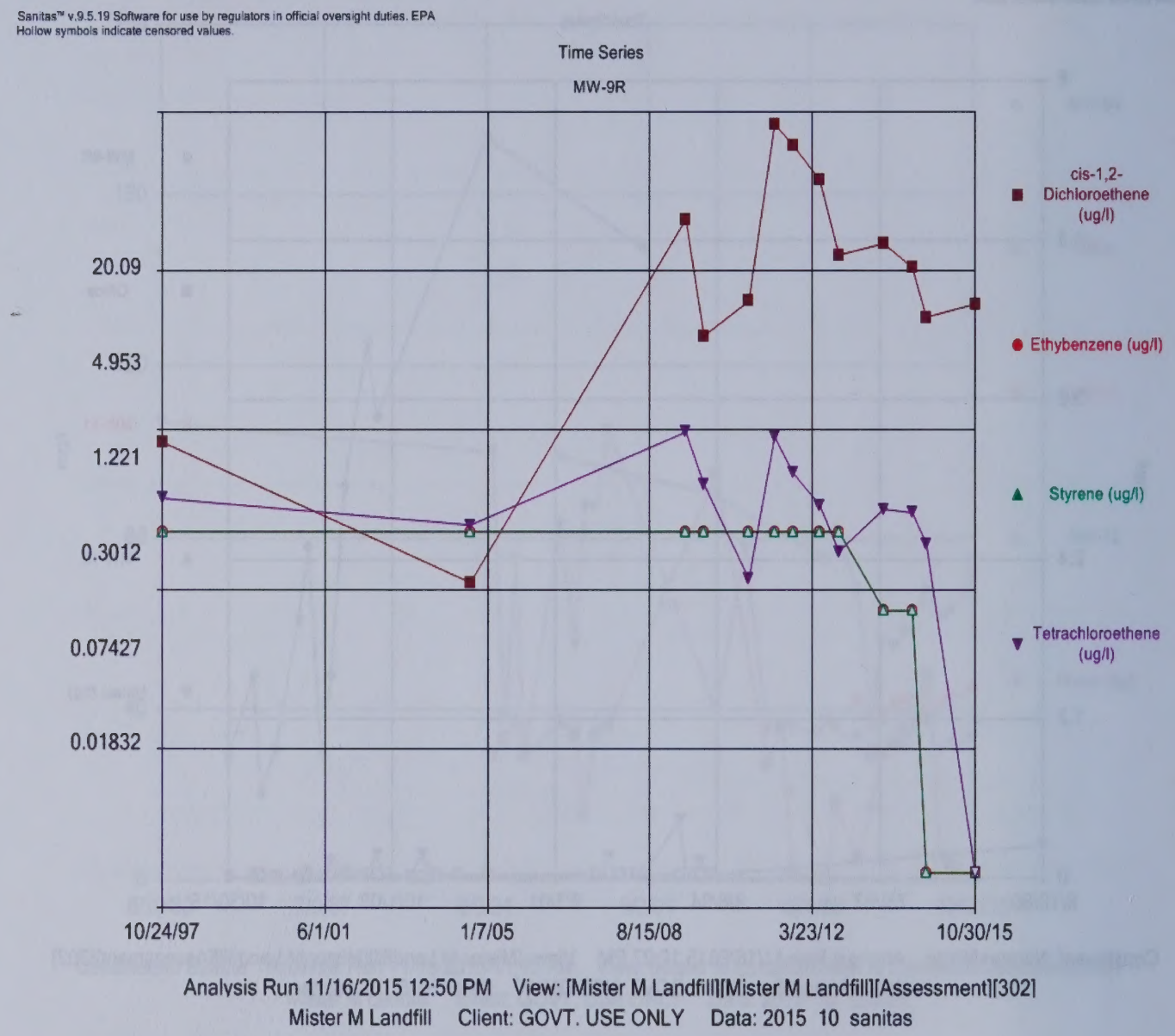
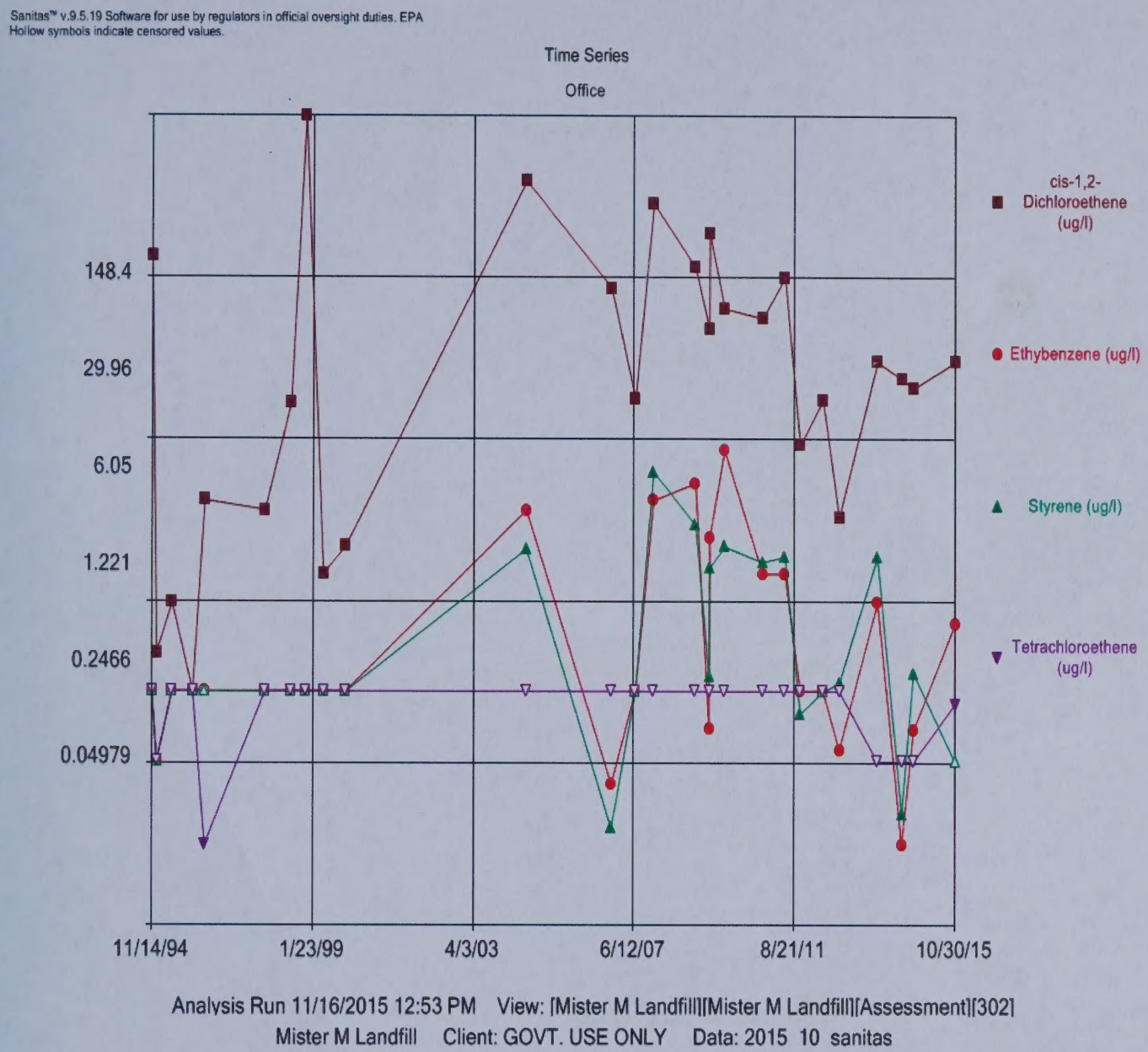
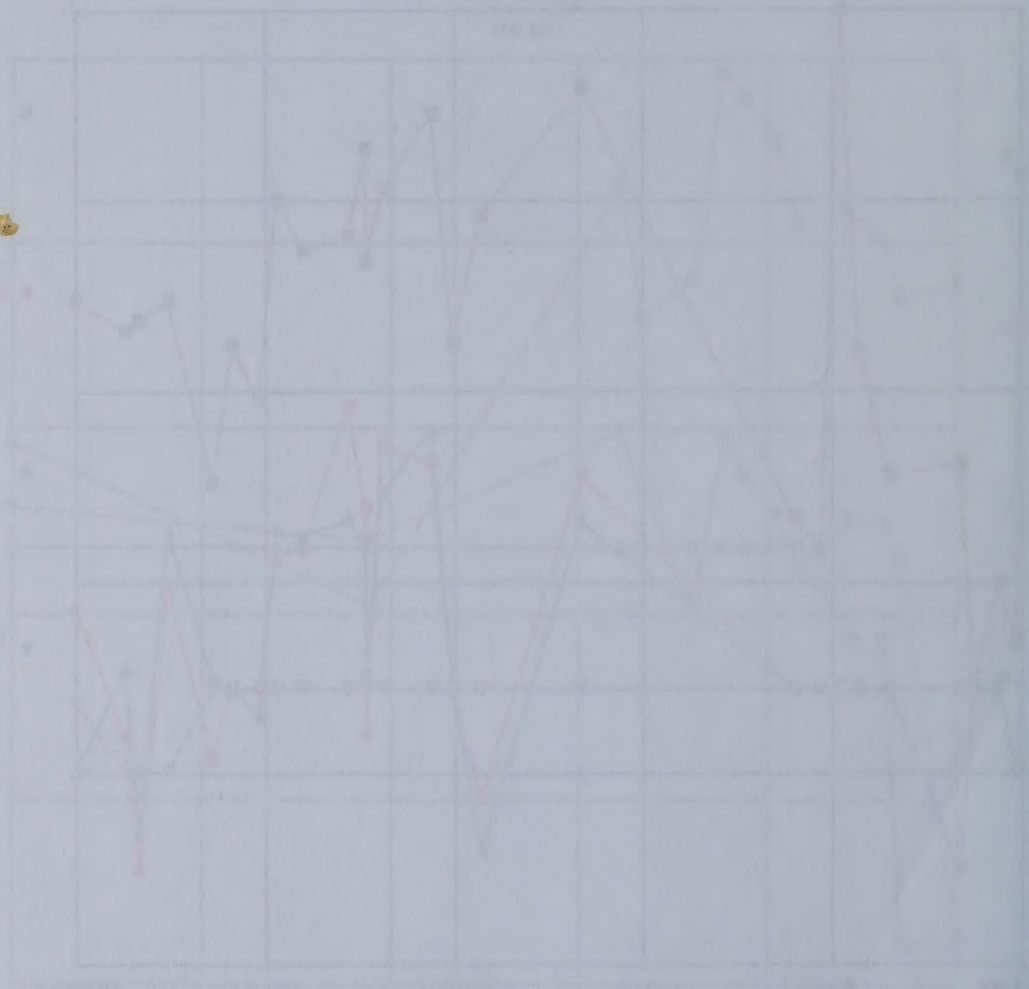


Figure F-15: Trend Analysis for selected VOC's in MW-OW





Correspondence Slip

Date Requested: 11/18/15

Originator: JC

Date Needed By: _____

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	AS 11/19/15
mgh		[illegible] 5-27-16
RT		RT 6-6-16
		/

Mail original via:
O Regular O Certified O Registered O FedEx

Fax to addressee at:

Proof Path: G:\WUT\gws\Gwater\misterm\Results

Mail copy of enclosures to CC's? Y N

Copies of enclosures for file needed? (Y) N

Copy of letter for file needed? Y N

Email copies sent? Y N

Special Instructions: 10-2015

This is an interval report I produce, so after editing it can be filed. Thank you.

EMAIL copy sent to Project Originator? Y N

County Fergus

Facility & # 302

Closure	Landfarm
Finan Assur	Liner
GW Corr Meas	Methane
~~GW Monitoring~~	O & M
GW Reports	Run-on
Inspections	

Other: _____

_____

Monitoring Well Purging and Sampling Form

Site Name: Mishawaka LDFW Sample Location: MW-12

Personnel: JC Sample ID: SMA

Date: 10-29-15 Field Conditions: pd. sunny 50's

Condition of Well: G.O.

Depth to Water (DTW): 11.81 - 1.0' Total Depth of Well (TD): 16.4

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: =.96 Three Well Volumes:

Purge Equipment: Bladder Pump Pump Depth: Start Time: 1120

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1145	8			7.22	705	11.57	-66.1	9.77		
1150	12			7.31	695	10.45	-103	10.10		
1155	14			7.34	683	10.45	-98.8	10.25		
1205	18			7.25	687	10.31	-85.7	10.05		

Sample Time: 1210 Sampling Method: Bladder Pump

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs ✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC ✓	
250mL Plastic	HNO_3	Dissolved Metals ✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: 20 gal. Final Depth to Water: End Time:

Notes: Reached parameter stabilization ± 3.0 ± 0.3%

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: MW-11 Sample Location: Inside MW F

Personnel: OC Sample ID:

Date: 1-29-15 Field Conditions:

Condition of Well: good

Depth to Water (DTW): 34.54 - 1.0' Total Depth of Well (TD): 83

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 49(.57) = Three Well Volumes: 24.5

Purge Equipment: Disposable bailer Pump Depth: Start Time: 1239

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1245	4			7.44	370	12.94	-102.4	9.20		
1252	~~8~~ (eight)			7.32	673	10.15	-102.9	10.07		
1256	10			7.37	651	9.51	-93.5	10.18		
1302	14			7.36	654	9.41	-57.5	10.09		

Sample Time: 1310 Sampling Method: Disposable bailer

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: 15 Final Depth to Water: ~~—~~ End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Mosher Rd LF Sample Location: MW-9R

Personnel: JC Sample ID:

Date: 10-22-15 Field Conditions: pd. cldy 50's

Condition of Well: good

Depth to Water (DTW): 12.77-1.0' Total Depth of Well (TD): 51

Well Diameter: 2" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: 6.23(.51)=3.25 Three Well Volumes: 3.25

Purge Equipment: Rigid to Bailer Pump Depth: Start Time: 1330

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1338	2			7.50	890	11.36	53.4	9.80		
1340	4			7.32	967	10.08	56	9.64		
			needs 1hr+ for recovery to sample							

Sample Time: 1350 Sampling Method: SAM

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	
250mL Plastic	HNO_3	Dissolved Metals		Fe, Mn
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: 4 Final Depth to Water: End Time:

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: Whiskey "m LF Sample Location: MW-OW

Personnel: DC Sample ID:

Date: 10-29-15 Field Conditions: pd. cld 50°

Condition of Well: Good

Depth to Water (DTW): 36.45 -1.0' Total Depth of Well (TD):

Well Diameter: 4" Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: N/A

Purge Equipment: Disposable bailer Pump Depth: Start Time: 14[00]

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
14[05]	4			7.59	590	12.39	-37.5	8.22		
14[15]	8			7.50	598	10.36	0.5	10.10		
14[25]	12			7.45	599	12.11	~~-17~~ -20	3.09		

Sample Time: 14[30] Sampling Method: SAA

Containers	Preservative	Parameters	Comments
3 x 40mL Vial	HCl	VOCs	
500mL Plastic	none	Sulfate, Chloride, pH, SC	
250mL Plastic	HNO_3	Dissolved Metals Fe, Zn	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	

Total Volume Purged: Final Depth to Water: End Time: 14[45]

Notes:

Sampler Signature:

Monitoring Well Purging and Sampling Form

Site Name: misted in' CF Sample Location: ~~Mark~~ MW-HW

Personnel: JC Sample ID:

Date: 10-29-15 Field Conditions: 62. cloudy 5 mi

Condition of Well: Good

Depth to Water (DTW): / Total Depth of Well (TD):

Well Diameter: Well Diameter Constant (C): 2" = 0.163 4" = 0.653 6" = 1.469

One Well Volume (gallons) = (TD - DTW) x C: Three Well Volumes: /

Purge Equipment: gmp Pump Depth: / Start Time: 1530

Time	Vol. (gal)	Rate (gpm)	DTW (feet)	pH (stu)	SC (mS/cm)	Temp. (°C)	ORP (mV)	DO (mg/L)	Turb. (NTU)	Comments
1535	15	2	/	7.65	761	12.39	104	9.29		
1540	35	~2	/	7.52	792	12.34	101	9.31		
1545	50	1	/	7.41	798	12.36	110	8.35		

Sample Time: 1545 Sampling Method: Grab

Containers	Preservative	Parameters		Comments
3 x 40mL Vial	HCl	VOCs	✓	
500mL Plastic	none	Sulfate, Chloride, pH, SC	✓	x2
250mL Plastic	HNO_3	Dissolved Metals	✓	
250mL Plastic	H_2SO_4	Nitrate+Nitrite	✓	

Total Volume Purged: Final Depth to Water: End Time: 1550

Notes: (collected duplicate)

Sampler Signature:

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MT-DEQ Solid Waste program	Mister M Landfill	State: MT	Yes ☑ No ☐
Report Mail Address (Required):	**Contact Name:** / **Phone/Fax:**	**Cell:**	**Sampler: (Please Print)**
☐ No Hard Copy Email:	John Collins 406 444-2802		John Collins
Invoice Address (Required): on file	**Invoice Contact & Phone:** BA	**Purchase Order:**	**Quote/Bottle Order:**
☐ No Hard Copy Email:			

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP **Format:**
☑ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: please filter for diss. metals

Shipped by: hand del

Cooler ID(s): Y

Receipt Temp 4.7 °C TB

On Ice: Y N

Custody Seal On Bottle Y N; On Cooler Y N

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	8260 B (VOC's)	6010,20 Metals	Nitrate + Nitrite	E 300 (Cl, SO4)	Hg	(unfiltered) TDS (only) Fe, Zn (dissolved)					
1	mw-12	10-29-15	1210	GW	✓	✓	✓	✓	✓	✓					
2	mw-11	10-29-15	1310	GW	✓	✓	✓	✓	✓	✓					
3	mw-9r	10-29-15	1350	GW	✓			✓	✓	✓	✓				
4	mw-OW	10-29-15	1430	GW	✓			✓	✓	✓	✓				
5	mw-HW	10-29-15	1515	GW	✓	✓	✓	✓	✓	✓					
6	mw-HW Dup.	10-29-15	1510	GW	✓	✓	✓	✓	✓	✓					
7															
8															
9															
10															

LABORATORY USE ONLY

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
		10/30/15-1315				
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
				Received by Laboratory: Wanda	Date/Time: 10-30-15 1315	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: ✓

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES

www.energylab.com

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Toll Free: 800.735.4489
Voice: 406.252.6325
Fax: 406.252.6069

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PO Box 3258 (82602)
E-mail: casper@energylab.com
Toll Free: 888.235.0515
Voice: 307.235.0515
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Toll Free: 888.690.2218
Voice: 979.690.2217
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E-mail: gillette@energylab.com
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Voice: 307.686.7175
Fax: 307.682.4625

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PO Box 5688 (59604)
E-mail: helena@energylab.com
Toll Free: 877.472.0711
Voice: 406.442.0711
Fax: 406.442.0712

Rapid City, SD
2821 Plant Street (57702)
E-mail: rapid_city@energylab.com
Toll Free: 888.672.1225
Voice: 605.342.1225
Fax: 605.342.1397

BEFORE COMPLETING THE ATTACHED CHAIN OF CUSTODY(COC) FORM:

If you wish to request RUSH Turn Around Time (TAT), contact the laboratory PRIOR to sample submittal to confirm that RUSH analysis is available for your request. Verify date required. Additional charges will apply for RUSH Turn Around Time (TAT).

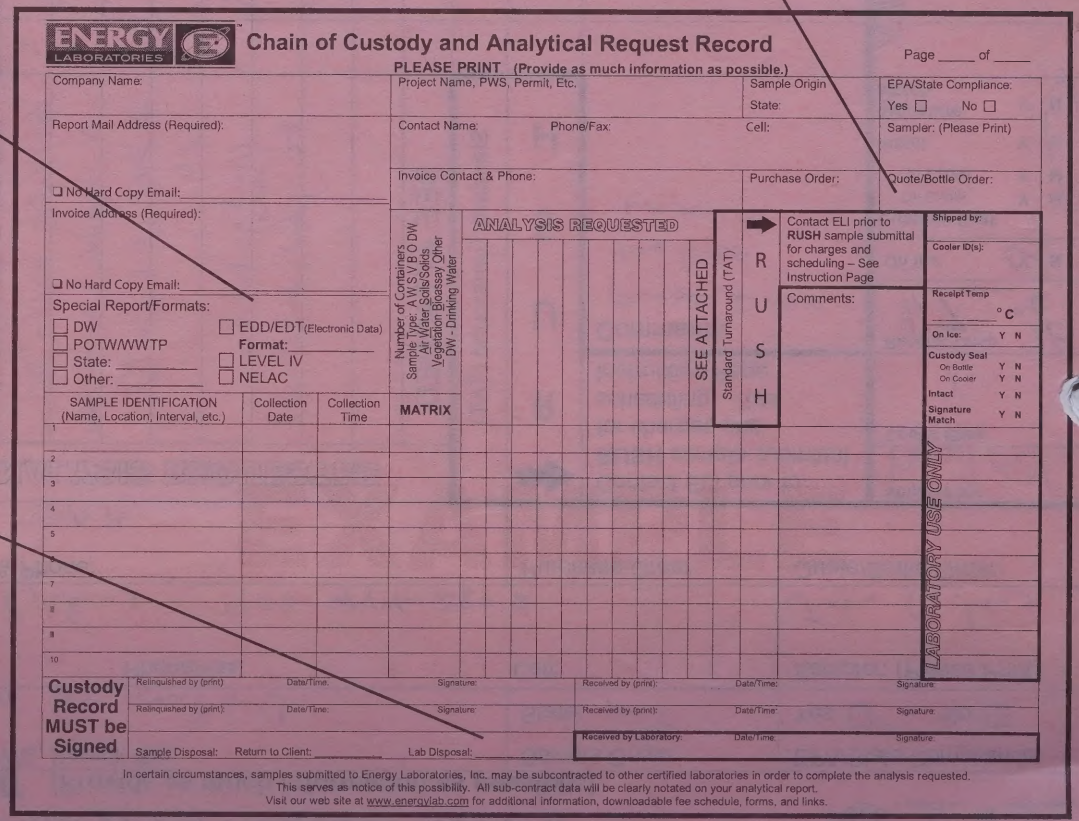
Please contact ELI PRIOR to sample submittal if services are other than standard.

It is important to complete the Chain Of Custody (COC) form with as much detailed information as possible. This information is required so that the appropriate analytical services, reporting and invoicing can be provided for your project.

Quote Number or Bottle Order Number:
ELI provides quotes for project specific sampling requirements. It is very important to provide the ELI quote number or bottle order number to assure that you receive the quoted pricing for your project.

Select the types of services you need:
If services other than standard are required for your analytical project, contact ELI PRIOR to sample submittal.

Sample Disposal:
ELI, when applicable, will dispose of all non-hazardous samples. Routinely, hazardous samples will be returned to the client. If requested, ELI will dispose of hazardous samples at client's expense.



ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT (Provide as much information as possible.)

Company Name:
Project Name, PWS, Permit, Etc.
Sample Origin State:
EPA/State Compliance: Yes ☐ No ☐
Report Mail Address (Required):
Contact Name: Phone/Fax: Cell:
Sampler: (Please Print)
☐ No Hard Copy Email:
Invoice Contact & Phone:
Purchase Order:
Quote/Bottle Order:
Invoice Address (Required):
☐ No Hard Copy Email:
Special Report/Formats:
☐ DW ☐ EDD/EDT(Electronic Data)
☐ POTW/WWTP Format:
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

Number of Containers
Sample Type: A-Air S-Solid/Soil DW-Drinking Water WW-Wastewater W-Water SL-Sludge O-Oil Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED
Standard Turnaround (TAT)
RUSH
Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page
Comments:

Shipped by:
Cooler ID(s):
Receipt Temp ____ °C
On Ice: Y N
Custody Seal On Bottle Y N On Cooler Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Custody Record MUST be Signed

Relinquished by (print): Date/Time: Signature:
Relinquished by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by Laboratory: Date/Time: Signature:

Sample Disposal: Return to Client: ____ Lab Disposal: ____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

LICENSE # 302

COUNTY FERGUS

FILE CATEGORY IS

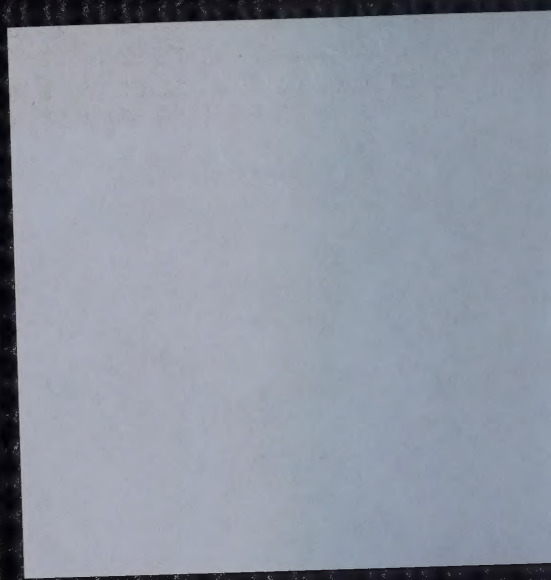
ACTIVE BUD CLOSED PENDING

ONE-TIME LANDFARM

FILE IN

Autoclave	GW Reports
Main	Inspections
Closure/PostClosure	Liner/Leachate
FA	Meth Control
Closure/PostClosure FA	Meth Monitoring
GW Corr Measures	O & M
GW Monitoring	Run-On/Run-Off

ADD'L DIRECTIONS



Correspondence Slip

Date Requested: 2/2/15

Originator: JC

Date Needed By: 2/20/15

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	/
MLH		/
RT		/
Admin	File	/

Mail original via:
O Regular O Certified O Registered O FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? Y N

Copies of enclosures for file needed? Y N

Copy of letter for file needed? Y N

Email copies sent? Y N

Special Instructions: upon review completion, please file in the miscl M. Enf Monitoring file.

Thank you!

C.

EMAIL copy sent to Project Originator? Y N

CLOSED MISTER M LANDFILL, LICENSE #302
LEWISTOWN, FERGUS COUNTY, MONTANA

OCTOBER 2014 GROUNDWATER MONITORING RESULTS AND STATISTICAL ANALYSES

Prepared By:

Montana Department of Environmental Quality

Solid Waste Section

February 20, 2015

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APPENDIX A: LABORATORY ANALYTICAL AND QA/QC SUMMARY REPORT

Appendix B: Results of Statistical Analyses

1.0 INTRODUCTION

Groundwater monitoring at the closed Mister M Landfill, License #302, was conducted in October 2014 by the Montana Department of Environmental Quality (MDEQ), Solid Waste Section, according to the July 2011 Sampling and Analysis Plan for Groundwater (SAP) (MDEQ, 2011 [2]). The Mister M Landfill is located in Fergus County, Montana, approximately four miles east of Lewistown on US Highway 87. The landfill lies in a small south facing coulee which drains to Boyd Creek. The facility received Class II wastes from 1956 to 1998, and was granted interim closure status on December 5, 2000. The current owners, Marvin and Sandra Mintyala, operated the facility from 1974 until approximately 2000, when the site was abandoned.

According to the Geohydrologic Characterization (Gillespie, 1993 revised; and Gillespie, 1994) the landfill is underlain by the Kootenai formation, which consists of predominately shale with some silty sandstone. A basal unit of sandstone in the Kootenai formation is the uppermost aquifer in the area. Minor amounts of water have been encountered in the upper portions of the Kootenai formation but most of the monitoring wells completed in the upper Kootenai formation at the site have frequently been dry or contained minimal volumes of water.

Previous groundwater sampling at the facility was conducted by the owners or their consultants from 1993-1999 (Gillespie, 1995 and 1996; Energy Laboratories, 1997, 1998 [1], and 1998 [2]; and Portage Environmental, 1999 and 2000). From 2003-2007 Tetra Tech, Inc was authorized by the MDEQ to conduct groundwater monitoring in the absence of action by the owners (Energy Laboratories, 2003, 2004, 2005, 2006, and 2007; Maxim, 2005; Tetra Tech, 2006 and 2008). MDEQ Solid Waste Section personnel have conducted groundwater monitoring from January 2009 to the present.

2.0 Field Procedures

MDEQ Solid Waste Section personnel conducted monitoring activities on October 1 and 2, 2014, including monitoring well inspections, static water level (SWL) measurements, and groundwater sample collection as part of the detection monitoring program currently in effect for the facility. Copies of the field notes are in the Solid Waste Section files. All field activities described in this report were conducted in accordance with the approved July 2011 SAP, and any deviations from the SAP are described herein. The analysis of groundwater samples was conducted by Energy Laboratories Inc, in Helena, Montana.

2.1 Well Inspections

The monitoring wells currently in use were inspected on October 1, 2014. MW-OW does not have an external protective casing. All other monitoring wells are in good condition.

2.2 Water Level Measurements

Static water levels were measured on October 1, 2014, in wells MW-5, MW-9R, MW-11, MW-12, and MW-OW using a Slope Indicator electric water level meter. The total depths of wells MW-9R, MW-11, and MW-12 were also recorded.

2.3 Groundwater Sampling

Groundwater samples were collected October 1, 2014, from wells MW-9R, MW-11, MW-12, MW-HW, and MW-OW. At each well that was sampled, samples were collected for all of the parameters listed in the SAP. The wells were purged and sampled following the procedures in the SAP with the deviations described below. All of the wells were purged and sampled using disposable bailers. Field water quality measurements were made using Horiba water quality meter U-10, which was calibrated by Solid Waste Section personnel.

3.0 Monitoring Results

3.1 Groundwater Levels and Flow

The October 2014 water levels were very similar to the June 2014 levels, with the exception of MW-6, which was 5 feet lower than June 2014. Figure 4 displays the June 2014 static water levels on a map. No attempt was made to contour the static water levels as the shallow wells are completed in minor water bearing zones of unknown horizontal extent and connectivity, and the water level measurements made in the deep water bearing zone are from wells that have not yet been surveyed. Groundwater flow in the shallow water bearing zones likely follows local topography and flows in a south to southwest direction. Groundwater flow in the deep water bearing zone is assumed to be to the southwest based on records from domestic wells in the area. Tables containing historic water levels and hydrographs for both the shallow and deep water bearing zones are included in Appendix D.

3.2 Data Validation

Upon receipt from the laboratory, the analytical results were validated as described in the SAP to ensure that the data quality objectives had been met. All samples were analyzed within the required holding times. The relative percent difference for all field and laboratory duplicates were within control limits, all control samples and blanks were acceptable.

3.3 Groundwater Analytical Results

A copy of the laboratory analytical report is included in Appendix A. Historical concentration plots for all parameters detected during this sampling event and a table containing historical analytical results is included in Appendix C.

3.3.1 Indicator Parameters

Indicator parameters for the site continue to be stable with little fluctuations from those observed in the shallow background well MW-5 in previous sampling events and in other shallow wells.

3.3.2 Dissolved Metals

Arsenic, Barium, Cadmium, Iron and Zinc were detected at low levels in facility wells during this sampling event. None of the metals detected exceeded the groundwater protection standards.

3.3.3 Volatile Organic Compounds

Overall there do not appear to be any significant increasing trends in VOC's at the site, only sporadic detections in MW-OW of (concentrations in µg/L): cis-1, 2-Dichloroethene (10), Ethyl benzene (0.34), Styrene (0.60) and vinyl chloride (0.31). Detection of VOC's in other wells are at estimated values, J flagged by the Laboratory, which are below the detection limit.

4.0 Statistical Analysis

4.1 Statistical Methods

The statistical analyses were performed using the statistical software package Sanitas v.9.4, the validated analytical data was first screened to determine which parameters required statistical analysis. Only parameters which were detected in one or more compliance wells (MW-11 and MW-12) and had been historically detected at least once in the background well (MW-HW) were analyzed using an inter-well prediction limit. If a parameter was detected in a compliance well, but was always non-detected in the background dataset, the background value was set as the detection limit and any detection of that parameter above the detection limit was considered a statistical exceedance of background. As a result of the screening described above, the parameters selected for prediction limit analysis were: pH, SC, Chloride, Sulfate, Arsenic, Barium, Iron, and Zinc.

The background dataset was screened to determine if trends were present using the Sen's Slope/Mann Kendall test. Each selected parameter was compared to the background dataset using an inter-well prediction limit analysis. The Sanitas software determines the distribution of the background dataset and performs the appropriate statistical test for that distribution. If the

prediction limit analysis indicated an exceedance of background levels, a Sen's Slope/Mann Kendall test was conducted to analyze any trends in the data. All of the statistical tests were performed at a 95% site-wide confidence level, or the maximum confidence level that was possible given the size of the background dataset if a 95% confidence level was not possible.

A Sen's Slope/Mann Kendall test was also conducted on all parameters detected in the interior monitoring wells (MW-9R and MW-OW) to analyze any trends in the data.

4.2 Analysis Results

Table 1 contains a summary of the results of the statistical analyses. The full results of the statistical analyses are included in Appendix F. Due to the small size of the background dataset the site-wide confidence levels for non-parametric tests were less than 95%.

The values from the current sampling event for all parameters in compliance wells MW-11 and MW-12 were within prediction limits.

Trend analyses for well MW-9R indicated significant decreasing trends for Sulfate and Nitrate + Nitrite. The cause of these trends is unknown, but MW-9R is completed in a shallow aquifer which produces very little water, thus changes in groundwater chemistry are not unexpected.

5.0 Conclusions and Recommendations

Groundwater monitoring was conducted by the MDEQ at the Mister M Landfill on October 1 and 2, 2014. Water levels were measured in five wells, and groundwater samples were collected from five wells. All currently used wells were inspected.

Water levels will continue to be monitored semi-annually in the future to provide additional data on water level trends.

Additional data from the background well, MW-HW, is useful for evaluating the results from the other deep wells and increasing the power of the statistical tests. MW-HW will continue to be sampled on a semi-annual basis to increase the size of the background dataset for the compliance wells. Three VOCs were detected in MW-9R at much lower levels than previous sampling events and there appears to be an overall slightly downward trend. The contaminants present in MW-9R are different than those seen in MW-OW indicating that the contamination may be from a different source or MW-9R may be closer to the source area than MW-OW; however the precise source of these VOCs is unknown. Well MW-9R will continue to be sampled in future events for Inorganics and VOCs. Well MW-OW continues to show both inorganic and organic contamination. Sulfate and Chloride have returned to near normal levels, while Zinc and Iron concentrations remain slightly above normal levels. These metals are possibly the result of the galvanized well casing and or previous down-hole equipment associated with the use of MW-OW as a water supply well and not due to landfill leachate.

The analytical results and statistical analyses from compliance wells MW-11 and MW-12 show no impacts from landfill leachate. The one VOC, cis-1, 2-Dichloroethene, which was previously detected at a very low level in MW-12 was not detected during the past four sampling events. All parameters in the compliance wells are below background levels thus the facility remains in detection monitoring. MW-11 and MW-12 will continue to be sampled semi-annually as the point of compliance wells for the facility. The next groundwater sampling event is tentatively scheduled for April 2015.

6.0 REFERENCES

Gillespie, Robert W. P.E., 1993 revised, "Geohydrologic Characterization, Mister M Landfill, Lewistown, Montana"

Gillespie, Robert W. P.E, 1994, "Addendum to Site Characterization, Mister M Landfill, License No. 302, Lewistown, Montana"

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Maxim Technologies, 2005, "November 2005 Groundwater Monitoring Field Notes, Mister M Landfill, Lewistown, Montana"

MDEQ, 2011 [1], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, May 2011 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2011 [2], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, Groundwater Monitoring Sampling and Analysis Plan"

MDEQ, 2011 [3], "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, October 2011 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2012, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, Montana, May 2012 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2012, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, October 2012 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2013, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, October 2013 Groundwater and Monitoring Results and Statistical Analyses"

MDEQ, 2014, "Closed Mister M Landfill, License #302, Lewistown, Fergus County, June 2014 Groundwater and Monitoring Results and Statistical Analyses"

TABLES

Table 1: Summary of Results of Statistical Analyses for October 2014 Data

		Prediction Interval Analysis					Trend Analysis	
Parameter	**Well**	**Distribution**	**Confidence Level (%)**	**Prediction Limit(s)**	**Result**	**Exceeds Limit?**	**Slope (per yr)**	**Significant ?**
pH	MW-9R	normal	98	6.88-8.08	7.5	No	-0.02	No
	MW-11	normal	98	6.88-8.08	7.6	No	-0.08	No
	MW-12	normal	98	6.88-8.08	7.4	No	-0.36	No
	MW-OW	normal	98	6.88-8.08	7.7	No	0.01	No
SC	MW-9R	N/A	98	867.2	980	Yes	16.75	Yes
	MW-11	normal	98	867.2	652	No	3.94	No
	MW-12	normal	98	867.2	701	No	10.76	No
	MW-OW	normal	98	867.2	623	No	-4.1	No
Chloride	MW-9R	normal	98	12.41	6	No	0.57	No
	MW-11	normal	98	12.41	2	No	0	No
	MW-12	normal	98	12.41	3	No	-0.71	No
	MW-OW	normal	98	12.41	6	No	0.05	No
Sulfate	MW-9R	non-normal	98	107	3	No	-2.38	No
	MW-11	normal	98	107	43	No	0.5	No
	MW-12	normal	98	107	34	No	0.5	No
	MW-OW	normal	98	107	4	No	-0.51	No
Nitrate+Nitrite	MW-9R	normal	98	0.44	1.52	Yes	-0.4	Yes
Iron	MW-11	normal	98	0.75	*ND*	No	0.04	No
	MW-12	N/A	N/A	0.75	*ND*			
	MW-OW	non-normal	98	0.75	*ND*	No	0.01	No
Zinc	MW-12	normal	98	0.09	*ND*	No	0	No
	MW-OW	normal	98	0.09	*0.555*	Yes	0.04	No
cis-1,2-Dichloroethene	MW-9R	non-normal	98	N/A	3.3	N/A	0.26	No
	MW-OW	non-normal	98	N/A	10	N/A	0.32	No
Ethyl benzene	MW-OW	normal	98	N/A	0.34	No	0	No
Styrene	MW-OW	normal	98	N/A	0.6	No	0	No
Tetrachloroethene	MW-9R	normal	98	N/A	0.45	No	0	No

Notes:
N/A = Not analyzed
ND = Non-detect
N/A = Not applicable

Table B-1: Historical Water Levels

Date	MW-1	MW-2	MW-4	MW-5	MW-6	MW-7	MW-7R	MW-8	MW-9	MW-9R	MW-10	MW-10R	MW-11	MW-12	MW-OW
6/16/93	Dry	Dry	Dry	Dry	Dry	Dry		Dry							NM
10/14/94	NM	NM	NM	NM	NM	NM		NM	Dry		4155.69				NM
12/15/95	4154.12	Dry	Dry	4177.65	4160.64	4173.00		Dry	4140.77		4160.92				NM
3/28/96	4157.37	NM	NM	NM	NM	4176.51		NM	4139.43		4158.09				NM
11/29/05	4154.17	4174.1	NM	4181.82	Dry		Dry	4155.06		4159(1)		4161(1)			NM
12/18/07	Dry	Dry	Dry	4165.54	Dry		Dry	4155.04		4159(1)		4164(1)			4162(1)
1/21/09	4153.12	Dry	NM	4165.75(2)	?(3)		4177(1)(4)	NM		4159(1)		4164(1)			4163(1)
6/1/09	NM	NM	NM	4172.02	NM		NM	NM		4163(1)		4170(1)			4170(1)
10/26/09	NM	NM	NM	4165.23	NM		NM	NM		4160(1)		4164(1)			4163(1)
2/26/10	NM	NM	Dry	4165.44	4160.07		4177(1)	4154.52		4159(1)		NM(5)			4162(1)
6/21/10	NM	NM	NM	4172.91	4171.36		4190(1)	4169.97		4180(1)		NM(5)			4172(1)
10/25/10	NM	NM		4169.50	4166.84					4161(1)			4168(1)	4167(1)	4168(1)
5/23/11	NM	NM		4179.62	4178.04					4183(1)			4172(1)	Flowing(1)(6)	4179(1)
10/17/11	NM	NM		4171.25	4168.30					4160(1)			4175(1)	Flowing(1)(6)	4171(1)
5/22/12	NM	NM		4174.09	4172.42					4166(1)			4176(1)	Flowing(1)(6)	4173(1)
10/23/12	NM	NM		4166.19	NM					4159(1)			4173(1)	4164(1)	4165(1)
10/23/13	NM	NM		4163.84	4160.36					4158(1)			4170(1)	4164(1)	4166(1)
6/10/14	4148.97	NM		4168.81	4166.35			4152.34		4160(1)			4170(1)	4166(1)	4167(1)
10/1/14	4149.32	NM		4167.83	4160.37			4153.31		4160(1)			4169(1)	4165(1)	4166(1)

Notes:

NM = Not measured

= Well not present.

(1) Reference elevation estimated from topographic contours (5ft) and field observations

(2) Deeper than tape, 2 ft. of water in well, DTW calculated from TD recorded 12/18/07

(3) Deeper than tape, DTW unknown

(4) 3 in. of water in well, DTW calculated from TD

(5) Well damaged, measurement not possible.

(6) Well flowing artesian at time of measurement, top of casing elevation 4169ft

FIGURES



Figure 4: Groundwater Levels

Base Aerial Photo from 2012.

The reference elevations for MW-9R, MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.

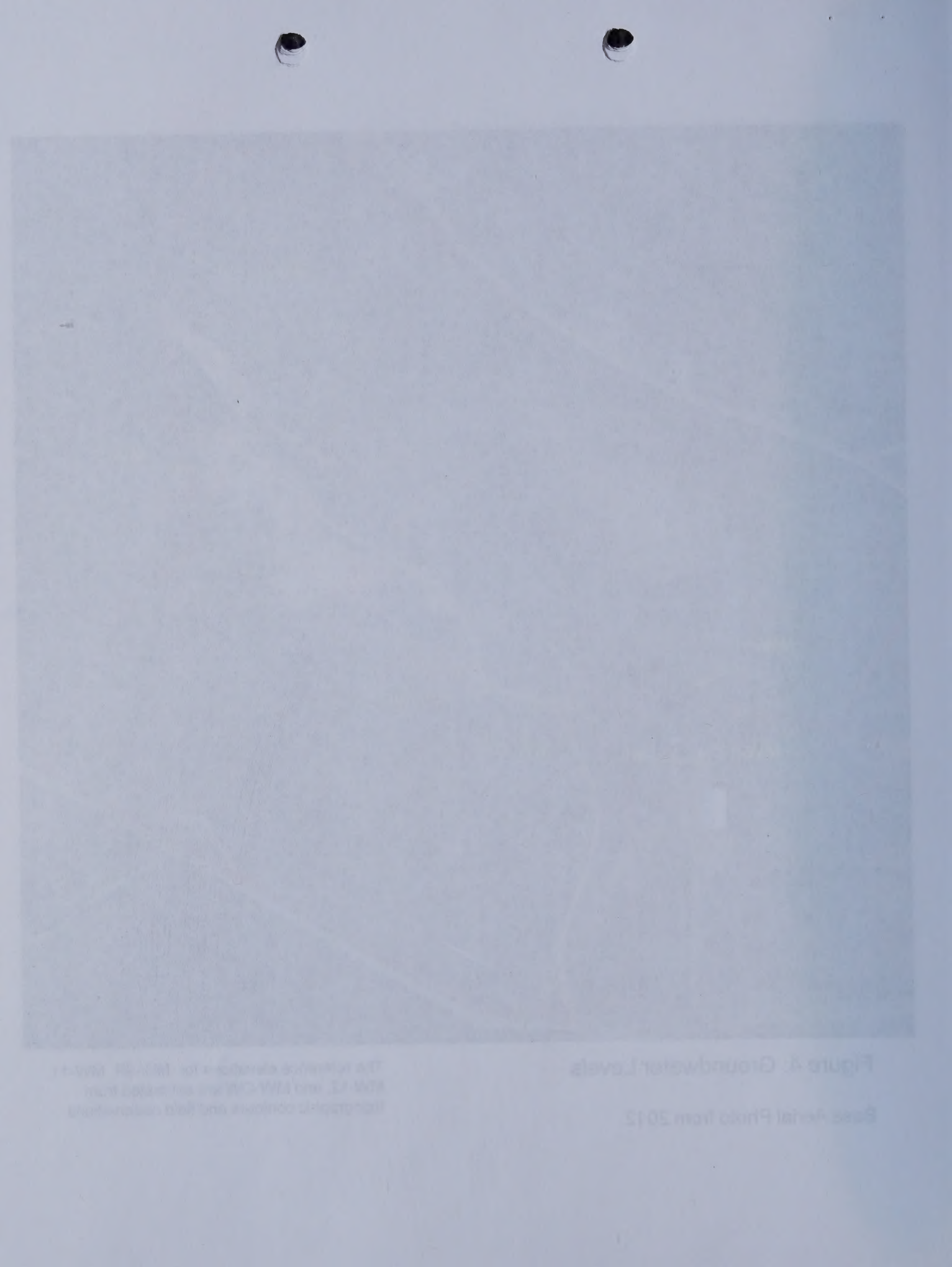


Figure B-1: Static Water Levels in Shallow Wells



The reference elevations for MW-7R, MW-9R, and MW-10R are estimated from topographic contours and field observations.



Figure B-2: Static Water Levels in Deep Wells



The reference elevations for MW-11, MW-12, and MW-OW are estimated from topographic contours and field observations.



APPENDIX A: LABORATORY ANALYTICAL REPORT

ANALYTICAL SUMMARY REPORT

October 14, 2014

MT-DEQ Solid Waste Section
PO Box 200901
Helena, MT 59620-0901

Work Order: H14100052 Quote ID: H876 - Landfill Parameters

Project Name: Mister M Landfill

Energy Laboratories Inc Helena MT received the following 6 samples for MT-DEQ Solid Waste Section on 10/2/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14100052-001	(HW) MW-HW	10/01/14 11:15	10/02/14	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Preparation, Dissolved Filtration 8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14100052-002	MW-9R	10/01/14 12:15	10/02/14	Aqueous	Same As Above
H14100052-003	MW-OW	10/01/14 13:00	10/02/14	Aqueous	Same As Above
H14100052-004	MW-12	10/01/14 14:00	10/02/14	Aqueous	Same As Above
H14100052-005	MW-11	10/01/14 15:10	10/02/14	Aqueous	Same As Above
H14100052-006	TB	10/01/14 11:15	10/02/14	Trip Blank	8260-Volatile Organic Comp, 40 CFR Part 258 App I

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Wanda Johnson
Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2014.10.15 08:23:53 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-001
Client Sample ID: (HW) MW-HW

Report Date: 10/14/14
Collection Date: 10/01/14 11:15
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	10/03/14 12:01 / cmm
Conductivity @ 25 C	774	umhos/cm		1		A2510 B	10/03/14 12:01 / cmm
INORGANICS							
Chloride	6	mg/L		1		E300.0	10/03/14 20:17 / abb
Sulfate	32	mg/L		1		E300.0	10/03/14 20:17 / abb
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	10/06/14 09:06 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	10/06/14 15:43 / dck
Arsenic	ND	mg/L		0.001		SW6020	10/06/14 15:43 / dck
Barium	0.070	mg/L		0.003		SW6020	10/06/14 15:43 / dck
Beryllium	ND	mg/L		0.0008		SW6020	10/06/14 15:43 / dck
Cadmium	ND	mg/L		0.00003		SW6020	10/06/14 15:43 / dck
Chromium	ND	mg/L		0.01		SW6020	10/06/14 15:43 / dck
Cobalt	ND	mg/L		0.01		SW6020	10/06/14 15:43 / dck
Copper	0.002	mg/L		0.002		SW6020	10/06/14 15:43 / dck
Iron	ND	mg/L		0.02		SW6020	10/06/14 15:43 / dck
Lead	0.0003	mg/L		0.0003		SW6020	10/06/14 15:43 / dck
Nickel	ND	mg/L		0.002		SW6020	10/06/14 15:43 / dck
Selenium	ND	mg/L		0.001		SW6020	10/06/14 15:43 / dck
Silver	ND	mg/L		0.0002		SW6020	10/06/14 15:43 / dck
Thallium	ND	mg/L		0.0002		SW6020	10/06/14 15:43 / dck
Vanadium	ND	mg/L		0.1		SW6020	10/06/14 15:43 / dck
Zinc	0.035	mg/L		0.008		SW6020	10/06/14 15:43 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 15:47 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 15:47 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Chloroform	0.67	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-001
Client Sample ID: (HW) MW-HW

Report Date: 10/14/14
Collection Date: 10/01/14 11:15
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 15:47 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 15:47 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 15:47 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 15:47 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 15:47 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 15:47 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 15:47 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 15:47 / abb
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	10/10/14 15:47 / abb
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	10/10/14 15:47 / abb
Surr: p-Bromofluorobenzene	117	%REC		76-127		SW8260B	10/10/14 15:47 / abb
Surr: Toluene-d8	89.0	%REC		79-122		SW8260B	10/10/14 15:47 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-002
Client Sample ID: MW-9R

Report Date: 10/14/14
Collection Date: 10/01/14 12:15
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	10/03/14 12:04 / cmm
Conductivity @ 25 C	980	umhos/cm		1		A2510 B	10/03/14 12:04 / cmm
INORGANICS							
Chloride	16	mg/L		1		E300.0	10/03/14 20:30 / abb
Sulfate	63	mg/L		1		E300.0	10/03/14 20:30 / abb
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.52	mg/L		0.01		E353.2	10/06/14 09:10 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	10/06/14 16:00 / dck
Arsenic	ND	mg/L		0.001		SW6020	10/06/14 16:00 / dck
Barium	0.044	mg/L		0.003		SW6020	10/06/14 16:00 / dck
Beryllium	ND	mg/L		0.0008		SW6020	10/06/14 16:00 / dck
Cadmium	0.00009	mg/L		0.00003		SW6020	10/06/14 16:00 / dck
Chromium	ND	mg/L		0.01		SW6020	10/06/14 16:00 / dck
Cobalt	ND	mg/L		0.01		SW6020	10/06/14 16:00 / dck
Copper	ND	mg/L		0.002		SW6020	10/06/14 16:00 / dck
Iron	ND	mg/L		0.02		SW6020	10/06/14 16:00 / dck
Lead	ND	mg/L		0.0003		SW6020	10/06/14 16:00 / dck
Nickel	0.004	mg/L		0.002		SW6020	10/06/14 16:00 / dck
Selenium	ND	mg/L		0.001		SW6020	10/06/14 16:00 / dck
Silver	ND	mg/L		0.0002		SW6020	10/06/14 16:00 / dck
Thallium	ND	mg/L		0.0002		SW6020	10/06/14 16:00 / dck
Vanadium	ND	mg/L		0.1		SW6020	10/06/14 16:00 / dck
Zinc	ND	mg/L		0.008		SW6020	10/06/14 16:00 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 15:19 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 15:19 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-002
Client Sample ID: MW-9R

Report Date: 10/14/14
Collection Date: 10/01/14 12:15
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb
Dichlorodifluoromethane	0.16	ug/L	J	0.50		SW8260B	10/10/14 15:19 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
cis-1,2-Dichloroethene	3.3	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 15:19 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 15:19 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 15:19 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 15:19 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 15:19 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Tetrachloroethene	0.45	ug/L	J	0.50		SW8260B	10/10/14 15:19 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Trichloroethene	0.19	ug/L	J	0.50		SW8260B	10/10/14 15:19 / abb
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 15:19 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 15:19 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 15:19 / abb
Surr: 1,2-Dichloroethane-d4	107	%REC		70-130		SW8260B	10/10/14 15:19 / abb
Surr: Dibromofluoromethane	103	%REC		77-126		SW8260B	10/10/14 15:19 / abb
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	10/10/14 15:19 / abb
Surr: Toluene-d8	87.0	%REC		79-122		SW8260B	10/10/14 15:19 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-003
Client Sample ID: MW-OW

Report Date: 10/14/14
Collection Date: 10/01/14 13:00
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.8	s.u.	H	0.1		A4500-H B	10/03/14 12:06 / cmm
Conductivity @ 25 C	623	umhos/cm		1		A2510 B	10/03/14 12:06 / cmm
INORGANICS							
Chloride	6	mg/L		1		E300.0	10/03/14 21:12 / abb
Sulfate	4	mg/L		1		E300.0	10/03/14 21:12 / abb
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	10/06/14 09:50 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	10/06/14 16:05 / dck
Arsenic	ND	mg/L		0.001		SW6020	10/06/14 16:05 / dck
Barium	0.083	mg/L		0.003		SW6020	10/06/14 16:05 / dck
Beryllium	ND	mg/L		0.0008		SW6020	10/06/14 16:05 / dck
Cadmium	ND	mg/L		0.00003		SW6020	10/06/14 16:05 / dck
Chromium	ND	mg/L		0.01		SW6020	10/06/14 16:05 / dck
Cobalt	ND	mg/L		0.01		SW6020	10/06/14 16:05 / dck
Copper	ND	mg/L		0.002		SW6020	10/06/14 16:05 / dck
Iron	ND	mg/L		0.02		SW6020	10/06/14 16:05 / dck
Lead	ND	mg/L		0.0003		SW6020	10/06/14 16:05 / dck
Nickel	ND	mg/L		0.002		SW6020	10/06/14 16:05 / dck
Selenium	ND	mg/L		0.001		SW6020	10/06/14 16:05 / dck
Silver	ND	mg/L		0.0002		SW6020	10/06/14 16:05 / dck
Thallium	ND	mg/L		0.0002		SW6020	10/06/14 16:05 / dck
Vanadium	ND	mg/L		0.1		SW6020	10/06/14 16:05 / dck
Zinc	0.555	mg/L		0.008		SW6020	10/06/14 16:05 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 14:50 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 14:50 / abb
Benzene	0.26	ug/L	J	0.50		SW8260B	10/10/14 14:50 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Carbon disulfide	0.40	ug/L	J	1.0		SW8260B	10/10/14 14:50 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 14:50 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-003
Client Sample ID: MW-OW

Report Date: 10/14/14
Collection Date: 10/01/14 13:00
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 14:50 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
cis-1,2-Dichloroethene	10	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 14:50 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 14:50 / abb
Ethylbenzene	0.34	ug/L	J	0.50		SW8260B	10/10/14 14:50 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 14:50 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 14:50 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 14:50 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 14:50 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Styrene	0.60	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Trichloroethene	0.12	ug/L	J	0.50		SW8260B	10/10/14 14:50 / abb
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 14:50 / abb
Vinyl chloride	0.31	ug/L	J	0.40		SW8260B	10/10/14 14:50 / abb
m+p-Xylenes	0.14	ug/L	J	1.0		SW8260B	10/10/14 14:50 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 14:50 / abb
Xylenes, Total	0.14	ug/L	J	1.0		SW8260B	10/10/14 14:50 / abb
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	10/10/14 14:50 / abb
Surr: Dibromofluoromethane	103	%REC		77-126		SW8260B	10/10/14 14:50 / abb
Surr: p-Bromofluorobenzene	116	%REC		76-127		SW8260B	10/10/14 14:50 / abb
Surr: Toluene-d8	90.0	%REC		79-122		SW8260B	10/10/14 14:50 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-004
Client Sample ID: MW-12

Report Date: 10/14/14
Collection Date: 10/01/14 14:00
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.4	s.u.	H	0.1		A4500-H B	10/03/14 12:08 / cmm
Conductivity @ 25 C	701	umhos/cm		1		A2510 B	10/03/14 12:08 / cmm
INORGANICS							
Chloride	3	mg/L		1		E300.0	10/03/14 21:54 / abb
Sulfate	34	mg/L		1		E300.0	10/03/14 21:54 / abb
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	10/06/14 09:12 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	10/06/14 16:09 / dck
Arsenic	0.002	mg/L		0.001		SW6020	10/06/14 16:09 / dck
Barium	0.048	mg/L		0.003		SW6020	10/06/14 16:09 / dck
Beryllium	ND	mg/L		0.0008		SW6020	10/06/14 16:09 / dck
Cadmium	ND	mg/L		0.00003		SW6020	10/06/14 16:09 / dck
Chromium	ND	mg/L		0.01		SW6020	10/06/14 16:09 / dck
Cobalt	ND	mg/L		0.01		SW6020	10/06/14 16:09 / dck
Copper	ND	mg/L		0.002		SW6020	10/06/14 16:09 / dck
Iron	ND	mg/L		0.02		SW6020	10/06/14 16:09 / dck
Lead	ND	mg/L		0.0003		SW6020	10/06/14 16:09 / dck
Nickel	ND	mg/L		0.002		SW6020	10/06/14 16:09 / dck
Selenium	ND	mg/L		0.001		SW6020	10/06/14 16:09 / dck
Silver	ND	mg/L		0.0002		SW6020	10/06/14 16:09 / dck
Thallium	ND	mg/L		0.0002		SW6020	10/06/14 16:09 / dck
Vanadium	ND	mg/L		0.1		SW6020	10/06/14 16:09 / dck
Zinc	ND	mg/L		0.008		SW6020	10/06/14 16:09 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 14:21 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 14:21 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-004
Client Sample ID: MW-12

Report Date: 10/14/14
Collection Date: 10/01/14 14:00
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
cis-1,2-Dichloroethene	0.28	ug/L	J	0.50		SW8260B	10/10/14 14:21 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 14:21 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 14:21 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 14:21 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 14:21 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 14:21 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 14:21 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 14:21 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 14:21 / abb
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	10/10/14 14:21 / abb
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	10/10/14 14:21 / abb
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	10/10/14 14:21 / abb
Surr: Toluene-d8	84.0	%REC		79-122		SW8260B	10/10/14 14:21 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-005
Client Sample ID: MW-11

Report Date: 10/14/14
Collection Date: 10/01/14 15:10
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	10/03/14 12:11 / cmm
Conductivity @ 25 C	652	umhos/cm		1		A2510 B	10/03/14 12:11 / cmm
INORGANICS							
Chloride	2	mg/L		1		E300.0	10/03/14 22:08 / abb
Sulfate	43	mg/L		1		E300.0	10/03/14 22:08 / abb
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	10/06/14 09:13 / cmm
METALS, DISSOLVED							
Antimony	ND	mg/L		0.0005		SW6020	10/06/14 16:14 / dck
Arsenic	ND	mg/L		0.001		SW6020	10/06/14 16:14 / dck
Barium	0.036	mg/L		0.003		SW6020	10/06/14 16:14 / dck
Beryllium	ND	mg/L		0.0008		SW6020	10/06/14 16:14 / dck
Cadmium	ND	mg/L		0.00003		SW6020	10/06/14 16:14 / dck
Chromium	ND	mg/L		0.01		SW6020	10/06/14 16:14 / dck
Cobalt	ND	mg/L		0.01		SW6020	10/06/14 16:14 / dck
Copper	ND	mg/L		0.002		SW6020	10/06/14 16:14 / dck
Iron	ND	mg/L		0.02		SW6020	10/06/14 16:14 / dck
Lead	ND	mg/L		0.0003		SW6020	10/06/14 16:14 / dck
Nickel	ND	mg/L		0.002		SW6020	10/06/14 16:14 / dck
Selenium	ND	mg/L		0.001		SW6020	10/06/14 16:14 / dck
Silver	ND	mg/L		0.0002		SW6020	10/06/14 16:14 / dck
Thallium	ND	mg/L		0.0002		SW6020	10/06/14 16:14 / dck
Vanadium	ND	mg/L		0.1		SW6020	10/06/14 16:14 / dck
Zinc	ND	mg/L		0.008		SW6020	10/06/14 16:14 / dck
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 13:53 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 13:53 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Carbon disulfide	6.1	ug/L		1.0		SW8260B	10/10/14 13:53 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 13:53 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-005
Client Sample ID: MW-11

Report Date: 10/14/14
Collection Date: 10/01/14 15:10
DateReceived: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 13:53 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 13:53 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 13:53 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 13:53 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 13:53 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 13:53 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 13:53 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 13:53 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 13:53 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 13:53 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 13:53 / abb
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	10/10/14 13:53 / abb
Surr: Dibromofluoromethane	103	%REC		77-126		SW8260B	10/10/14 13:53 / abb
Surr: p-Bromofluorobenzene	116	%REC		76-127		SW8260B	10/10/14 13:53 / abb
Surr: Toluene-d8	90.0	%REC		79-122		SW8260B	10/10/14 13:53 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-006
Client Sample ID: TB

Report Date: 10/14/14
Collection Date: 10/01/14 11:15
DateReceived: 10/02/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 13:24 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 13:24 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 13:24 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 13:24 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 13:24 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 13:24 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 13:24 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill
Lab ID: H14100052-006
Client Sample ID: TB

Report Date: 10/14/14
Collection Date: 10/01/14 11:15
DateReceived: 10/02/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 13:24 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 13:24 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 13:24 / abb
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	10/10/14 13:24 / abb
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	10/10/14 13:24 / abb
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	10/10/14 13:24 / abb
Surr: Toluene-d8	88.0	%REC		79-122		SW8260B	10/10/14 13:24 / abb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/14/14
Project: Mister M Landfill
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Batch: R101096
Lab ID: SC 150	Initial Calibration Verification Standard				Run: PHSC_101-H_141003A				10/03/14 11:34
Conductivity @ 25 C	151	umhos/cm	1.0	101	90	110			
Lab ID: SC 5000	Initial Calibration Verification Standard				Run: PHSC_101-H_141003A				10/03/14 11:37
Conductivity @ 25 C	4950	umhos/cm	1.0	99	90	110			
Lab ID: SC 20000	Initial Calibration Verification Standard				Run: PHSC_101-H_141003A				10/03/14 11:39
Conductivity @ 25 C	19700	umhos/cm	1.0	98	90	110			
Lab ID: SC 2ND 1000	Laboratory Control Sample				Run: PHSC_101-H_141003A				10/03/14 11:41
Conductivity @ 25 C	989	umhos/cm	1.0	99	90	110			
Lab ID: H14100038-001ADUP	Sample Duplicate				Run: PHSC_101-H_141003A				10/03/14 11:52
Conductivity @ 25 C	281	umhos/cm	1.0				0.0	10	
Lab ID: H14100056-002ADUP	Sample Duplicate				Run: PHSC_101-H_141003A				10/03/14 12:18
Conductivity @ 25 C	11600	umhos/cm	1.0				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**A4500-H B**								Analytical Run: PHSC_101-H_141003A	
Lab ID:	**pH 7**	Initial Calibration Verification Standard							10/03/14 11:32	
pH		7.0	s.u.	0.1	100	98	102			
Method:	**A4500-H B**								Batch: R101096	
Lab ID:	**H14100038-001ADUP**	Sample Duplicate				Run: PHSC_101-H_141003A			10/03/14 11:52	
pH		8.0	s.u.	0.1				0.1	3	
Lab ID:	**H14100056-002ADUP**	Sample Duplicate				Run: PHSC_101-H_141003A			10/03/14 12:18	
pH		8.4	s.u.	0.1				0.0	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R101181
Lab ID: MB-26421	Method Blank				Run: ICPMS204-B_141006B				10/06/14 12:18
Antimony	ND	mg/L	1E-05						
Arsenic	ND	mg/L	3E-05						
Barium	ND	mg/L	3E-05						
Beryllium	ND	mg/L	2E-05						
Cadmium	ND	mg/L	6E-06						
Chromium	ND	mg/L	3E-05						
Cobalt	ND	mg/L	2E-05						
Copper	0.0001	mg/L	3E-05						
Iron	0.003	mg/L	0.0002						
Lead	ND	mg/L	8E-06						
Nickel	ND	mg/L	6E-05						
Selenium	ND	mg/L	7E-05						
Silver	ND	mg/L	3E-05						
Thallium	ND	mg/L	1E-05						
Vanadium	ND	mg/L	3E-05						
Zinc	0.002	mg/L	0.0003						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/14/14
Project: Mister M Landfill
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0								Analytical Run: IC101-H_141005A	
Lab ID: ICV	Initial Calibration Verification Standard							10/03/14 16:48	
Chloride	97	mg/L	1.0	97	90	110			
Sulfate	390	mg/L	1.0	99	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							10/03/14 17:30	
Chloride	96	mg/L	1.0	96	90	110			
Sulfate	390	mg/L	1.0	98	90	110			
Lab ID: CCV100314-1	Continuing Calibration Verification Standard							10/03/14 20:44	
Chloride	96	mg/L	1.0	96	90	110			
Sulfate	400	mg/L	1.0	99	90	110			
Method: E300.0								Batch: R101115	
Lab ID: ICB	Method Blank				Run: IC101-H_141005A			10/03/14 17:02	
Chloride	ND	mg/L	0.008						
Sulfate	ND	mg/L	0.08						
Lab ID: LFB	Laboratory Fortified Blank				Run: IC101-H_141005A			10/03/14 17:16	
Chloride	47	mg/L	1.0	94	90	110			
Sulfate	200	mg/L	1.0	102	90	110			
Lab ID: H14100052-003AMS	Sample Matrix Spike				Run: IC101-H_141005A			10/03/14 21:26	
Chloride	54	mg/L	1.0	95	90	110			
Sulfate	210	mg/L	1.0	101	90	110			
Lab ID: H14100052-003AMSD	Sample Matrix Spike Duplicate				Run: IC101-H_141005A			10/03/14 21:40	
Chloride	54	mg/L	1.0	95	90	110	0.2	20	
Sulfate	210	mg/L	1.0	101	90	110	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_141006A	
Lab ID: ICV	Initial Calibration Verification Standard								10/06/14 08:57
Nitrogen, Nitrate+Nitrite as N	1.04	mg/L	0.010	104	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								10/06/14 08:59
Nitrogen, Nitrate+Nitrite as N	0.519	mg/L	0.010	104	90	110			
Lab ID: ICB	Initial Calibration Blank, Instrument Blank								10/06/14 09:00
Nitrogen, Nitrate+Nitrite as N	0.00317	mg/L	0.010		0	0			
Lab ID: CCV	Continuing Calibration Verification Standard								10/06/14 09:36
Nitrogen, Nitrate+Nitrite as N	0.520	mg/L	0.010	104	90	110			
Method: E353.2								Batch: R101132	
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-HE_141006A				10/06/14 08:58
Nitrogen, Nitrate+Nitrite as N	0.978	mg/L	0.011	98	90	110			
Lab ID: MBLK	Method Blank				Run: FIA203-HE_141006A				10/06/14 09:03
Nitrogen, Nitrate+Nitrite as N	0.006	mg/L	0.001						
Lab ID: H14100052-001BMS	Sample Matrix Spike				Run: FIA203-HE_141006A				10/06/14 09:08
Nitrogen, Nitrate+Nitrite as N	0.967	mg/L	0.011	95	90	110			
Lab ID: H14100052-001BMSD	Sample Matrix Spike Duplicate				Run: FIA203-HE_141006A				10/06/14 09:09
Nitrogen, Nitrate+Nitrite as N	1.02	mg/L	0.011	100	90	110	4.9	20	
Lab ID: H14080409-006AMS	Sample Matrix Spike				Run: FIA203-HE_141006A				10/06/14 09:45
Nitrogen, Nitrate+Nitrite as N	0.992	mg/L	0.011	96	90	110			
Lab ID: H14080409-006AMSD	Sample Matrix Spike Duplicate				Run: FIA203-HE_141006A				10/06/14 09:46
Nitrogen, Nitrate+Nitrite as N	1.05	mg/L	0.011	101	90	110	5.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Analytical Run: ICPMS204-B_141006B
Lab ID: ICV STD	Initial Calibration Verification Standard								10/06/14 11:08
Antimony	0.0609	mg/L	0.0010	101	90	110			
Arsenic	0.0607	mg/L	0.0010	101	90	110			
Barium	0.0597	mg/L	0.0010	100	90	110			
Beryllium	0.0310	mg/L	0.0010	103	90	110			
Cadmium	0.0315	mg/L	0.0010	105	90	110			
Chromium	0.0617	mg/L	0.0010	103	90	110			
Cobalt	0.0610	mg/L	0.0010	102	90	110			
Copper	0.0623	mg/L	0.0010	104	90	110			
Iron	0.314	mg/L	0.0010	105	90	110			
Lead	0.0602	mg/L	0.0010	100	90	110			
Nickel	0.0622	mg/L	0.0010	104	90	110			
Selenium	0.0606	mg/L	0.0010	101	90	110			
Silver	0.0296	mg/L	0.0010	99	90	110			
Thallium	0.0604	mg/L	0.0010	101	90	110			
Vanadium	0.0604	mg/L	0.0010	101	90	110			
Zinc	0.0625	mg/L	0.0010	104	90	110			
Method: SW6020									Batch: R101181
Lab ID: ICB	Method Blank				Run: ICPMS204-B_141006B				10/06/14 11:56
Antimony	ND	mg/L	1E-05						
Arsenic	ND	mg/L	3E-05						
Barium	ND	mg/L	3E-05						
Beryllium	ND	mg/L	2E-05						
Cadmium	ND	mg/L	6E-06						
Chromium	ND	mg/L	3E-05						
Cobalt	ND	mg/L	2E-05						
Copper	ND	mg/L	3E-05						
Iron	0.0007	mg/L	0.0002						
Lead	ND	mg/L	8E-06						
Nickel	ND	mg/L	6E-05						
Selenium	ND	mg/L	7E-05						
Silver	ND	mg/L	3E-05						
Thallium	ND	mg/L	1E-05						
Vanadium	ND	mg/L	3E-05						
Zinc	ND	mg/L	0.0003						
Lab ID: LFB	Laboratory Fortified Blank				Run: ICPMS204-B_141006B				10/06/14 12:01
Antimony	0.0480	mg/L	0.0010	96	80	120			
Arsenic	0.0508	mg/L	0.0010	102	80	120			
Barium	0.0498	mg/L	0.0010	100	80	120			
Beryllium	0.0505	mg/L	0.0010	101	80	120			
Cadmium	0.0506	mg/L	0.0010	101	80	120			
Chromium	0.0517	mg/L	0.0010	103	80	120			

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Batch: R101181
Lab ID: LFB	Laboratory Fortified Blank				Run: ICPMS204-B_141006B				10/06/14 12:01
Cobalt	0.0512	mg/L	0.0010	102	80	120			
Copper	0.0522	mg/L	0.0010	104	80	120			
Iron	0.162	mg/L	0.0010	108	80	120			
Lead	0.0504	mg/L	0.0010	101	80	120			
Nickel	0.0522	mg/L	0.0010	104	80	120			
Selenium	0.0538	mg/L	0.0010	108	80	120			
Silver	0.0201	mg/L	0.0010	101	80	120			
Thallium	0.0507	mg/L	0.0010	101	80	120			
Vanadium	0.0505	mg/L	0.0010	101	80	120			
Zinc	0.0534	mg/L	0.0010	107	80	120			
Lab ID: H14100052-001DMS	Sample Matrix Spike				Run: ICPMS204-B_141006B				10/06/14 15:47
Antimony	0.0503	mg/L	0.0010	101	75	125			
Arsenic	0.0537	mg/L	0.0010	107	75	125			
Barium	0.121	mg/L	0.050	101	75	125			
Beryllium	0.0508	mg/L	0.0010	102	75	125			
Cadmium	0.0489	mg/L	0.0010	98	75	125			
Chromium	0.0504	mg/L	0.0050	101	75	125			
Cobalt	0.0498	mg/L	0.0050	99	75	125			
Copper	0.0512	mg/L	0.0050	98	75	125			
Iron	0.162	mg/L	0.020	105	75	125			
Lead	0.0507	mg/L	0.0010	101	75	125			
Nickel	0.0501	mg/L	0.0050	100	75	125			
Selenium	0.0607	mg/L	0.0010	121	75	125			
Silver	0.0198	mg/L	0.0010	99	75	125			
Thallium	0.0512	mg/L	0.00050	102	75	125			
Vanadium	0.0503	mg/L	0.010	101	75	125			
Zinc	0.0838	mg/L	0.010	97	75	125			
Lab ID: H14100052-001DMSD	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141006B				10/06/14 15:52
Antimony	0.0509	mg/L	0.0010	102	75	125	1.1	20	
Arsenic	0.0542	mg/L	0.0010	108	75	125	0.9	20	
Barium	0.121	mg/L	0.050	102	75	125	0.3	20	
Beryllium	0.0512	mg/L	0.0010	102	75	125	0.8	20	
Cadmium	0.0497	mg/L	0.0010	99	75	125	1.5	20	
Chromium	0.0506	mg/L	0.0050	101	75	125	0.5	20	
Cobalt	0.0503	mg/L	0.0050	100	75	125	1.0	20	
Copper	0.0516	mg/L	0.0050	99	75	125	0.7	20	
Iron	0.166	mg/L	0.020	108	75	125	2.6	20	
Lead	0.0508	mg/L	0.0010	101	75	125	0.3	20	
Nickel	0.0503	mg/L	0.0050	100	75	125	0.4	20	
Selenium	0.0626	mg/L	0.0010	125	75	125	3.1	20	
Silver	0.0200	mg/L	0.0010	100	75	125	0.9	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020									Batch: R101181
Lab ID: H14100052-001DMSD	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141006B			10/06/14 15:52	
Thallium	0.0510	mg/L	0.00050	102	75	125	0.5	20	
Vanadium	0.0510	mg/L	0.010	102	75	125	1.4	20	
Zinc	0.0843	mg/L	0.010	98	75	125	0.7	20	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R101324
Lab ID: 101014_CCV_3	Continuing Calibration Verification Standard								10/10/14 08:58
trans-1,4-Dichloro-2-butene	4.68	ug/L	1.0	94	70	130			
Acetone	48.4	ug/L	20	97	70	130			
Benzene	4.56	ug/L	1.0	91	70	130			
Bromochloromethane	4.40	ug/L	1.0	88	70	130			
Bromodichloromethane	4.72	ug/L	1.0	94	70	130			
Bromoform	4.00	ug/L	1.0	80	70	130			
Bromomethane	4.88	ug/L	1.0	98	70	130			
Carbon disulfide	4.56	ug/L	1.0	91	70	130			
Carbon tetrachloride	4.68	ug/L	1.0	94	70	130			
Chlorobenzene	4.96	ug/L	1.0	99	70	130			
Chlorodibromomethane	4.48	ug/L	1.0	90	70	130			
Chloroethane	5.08	ug/L	1.0	102	70	130			
Chloroform	4.60	ug/L	1.0	92	80	120			
Chloromethane	4.36	ug/L	1.0	87	70	130			
1,2-Dibromo-3-chloropropane	4.04	ug/L	1.0	81	70	130			
1,2-Dibromoethane	4.80	ug/L	1.0	96	70	130			
Dibromomethane	4.40	ug/L	1.0	88	70	130			
1,2-Dichlorobenzene	4.48	ug/L	1.0	90	70	130			
1,4-Dichlorobenzene	4.44	ug/L	1.0	89	70	130			
Dichlorodifluoromethane	4.88	ug/L	1.0	98	70	130			
1,1-Dichloroethane	5.28	ug/L	1.0	106	70	130			
1,2-Dichloroethane	4.64	ug/L	1.0	93	70	130			
1,1-Dichloroethene	4.72	ug/L	1.0	94	80	120			
cis-1,2-Dichloroethene	5.04	ug/L	1.0	101	70	130			
trans-1,2-Dichloroethene	4.88	ug/L	1.0	98	70	130			
1,2-Dichloropropane	4.96	ug/L	1.0	99	80	120			
cis-1,3-Dichloropropene	4.76	ug/L	1.0	95	70	130			
trans-1,3-Dichloropropene	4.44	ug/L	1.0	89	70	130			
Ethylbenzene	4.60	ug/L	1.0	92	80	120			
2-Hexanone	47.2	ug/L	20	94	70	130			
Iodomethane	4.80	ug/L	1.0	96	70	130			
Methyl ethyl ketone	46.0	ug/L	20	92	70	130			
Methyl isobutyl ketone	42.8	ug/L	20	86	70	130			
Methylene chloride	3.76	ug/L	1.0	75	70	130			
Styrene	4.72	ug/L	1.0	94	70	130			
1,1,1,2-Tetrachloroethane	4.44	ug/L	1.0	89	70	130			
1,1,2,2-Tetrachloroethane	4.64	ug/L	1.0	93	70	130			
Tetrachloroethene	5.04	ug/L	1.0	101	70	130			
Toluene	4.88	ug/L	1.0	98	80	120			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	70	130			
1,1,2-Trichloroethane	4.48	ug/L	1.0	90	70	130			
Trichloroethene	4.76	ug/L	1.0	95	70	130			
Trichlorofluoromethane	5.12	ug/L	1.0	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R101324
Lab ID: 101014_CCV_3	Continuing Calibration Verification Standard								10/10/14 08:58
1,2,3-Trichloropropane	4.32	ug/L	1.0	86	70	130			
Vinyl acetate	5.12	ug/L	1.0	102	70	130			
Vinyl chloride	4.96	ug/L	1.0	99	80	120			
m+p-Xylenes	9.32	ug/L	1.0	93	70	130			
o-Xylene	4.80	ug/L	1.0	96	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	104	69	131			
Surr: Dibromofluoromethane			1.0	102	70	125			
Surr: p-Bromofluorobenzene			1.0	104	76	123			
Surr: Toluene-d8			1.0	100	80	119			
Method: SW8260B									Batch: R101324
Lab ID: 101014_LCS_4	Laboratory Control Sample				Run: 1SATURN_141010A				10/10/14 09:41
trans-1,4-Dichloro-2-butene	5.36	ug/L	1.0	107	67	132			
Acetone	43.2	ug/L	20	86	55	144			
Benzene	4.56	ug/L	1.0	91	69	129			
Bromochloromethane	4.40	ug/L	1.0	88	72	125			
Bromodichloromethane	4.92	ug/L	1.0	98	71	122			
Bromoform	4.16	ug/L	1.0	83	65	130			
Bromomethane	4.80	ug/L	1.0	96	60	136			
Carbon disulfide	4.56	ug/L	1.0	91	71	135			
Carbon tetrachloride	4.48	ug/L	1.0	90	77	121			
Chlorobenzene	4.68	ug/L	1.0	94	78	120			
Chlorodibromomethane	4.84	ug/L	1.0	97	70	122			
Chloroethane	4.76	ug/L	1.0	95	62	135			
Chloroform	4.56	ug/L	1.0	91	71	121			
Chloromethane	3.86	ug/L	1.0	77	66	139			
1,2-Dibromo-3-chloropropane	5.04	ug/L	1.0	101	59	130			
1,2-Dibromoethane	4.84	ug/L	1.0	97	60	137			
Dibromomethane	4.16	ug/L	1.0	83	69	122			
1,2-Dichlorobenzene	4.36	ug/L	1.0	87	74	122			
1,4-Dichlorobenzene	4.72	ug/L	1.0	94	75	122			
Dichlorodifluoromethane	5.12	ug/L	1.0	102	57	144			
1,1-Dichloroethane	5.08	ug/L	1.0	102	76	125			
1,2-Dichloroethane	4.64	ug/L	1.0	93	69	131			
1,1-Dichloroethene	4.40	ug/L	1.0	88	67	129			
cis-1,2-Dichloroethene	4.88	ug/L	1.0	98	75	122			
trans-1,2-Dichloroethene	4.84	ug/L	1.0	97	75	124			
1,2-Dichloropropane	5.04	ug/L	1.0	101	75	127			
cis-1,3-Dichloropropene	4.92	ug/L	1.0	98	73	124			
trans-1,3-Dichloropropene	4.28	ug/L	1.0	86	72	127			
Ethylbenzene	4.80	ug/L	1.0	96	74	125			
2-Hexanone	48.0	ug/L	20	96	70	128			
Iodomethane	3.99	ug/L	1.0	80	52	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R101324
Lab ID: 101014_LCS_4	Laboratory Control Sample				Run: 1SATURN_141010A				10/10/14 09:41
Methyl ethyl ketone	42.4	ug/L	20	85	56	141			
Methyl isobutyl ketone	45.2	ug/L	20	90	71	121			
Methylene chloride	3.88	ug/L	1.0	78	61	125			
Styrene	5.20	ug/L	1.0	104	75	120			
1,1,1,2-Tetrachloroethane	4.56	ug/L	1.0	91	76	122			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	67	124			
Tetrachloroethene	4.92	ug/L	1.0	98	75	126			
Toluene	4.76	ug/L	1.0	95	73	122			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	76	124			
1,1,2-Trichloroethane	4.72	ug/L	1.0	94	72	125			
Trichloroethene	4.92	ug/L	1.0	98	72	126			
Trichlorofluoromethane	5.48	ug/L	1.0	110	73	131			
1,2,3-Trichloropropane	4.48	ug/L	1.0	90	58	142			
Vinyl acetate	4.88	ug/L	1.0	98	47	154			
Vinyl chloride	5.92	ug/L	1.0	118	69	129			
m+p-Xylenes	9.08	ug/L	1.0	91	72	124			
o-Xylene	4.36	ug/L	1.0	87	74	123			
Surr: 1,2-Dichloroethane-d4			1.0	100	69	131			
Surr: Dibromofluoromethane			1.0	96	70	125			
Surr: p-Bromofluorobenzene			1.0	103	76	123			
Surr: Toluene-d8			1.0	99	80	119			
Lab ID: 101014_MBLK_6	Method Blank				Run: 1SATURN_141010A				10/10/14 11:02
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0						
Acetone	ND	ug/L	20						
Benzene	ND	ug/L	1.0						
Bromochloromethane	ND	ug/L	1.0						
Bromodichloromethane	ND	ug/L	1.0						
Bromoform	ND	ug/L	1.0						
Bromomethane	ND	ug/L	1.0						
Carbon disulfide	ND	ug/L	1.0						
Carbon tetrachloride	ND	ug/L	1.0						
Chlorobenzene	ND	ug/L	1.0						
Chlorodibromomethane	ND	ug/L	1.0						
Chloroethane	ND	ug/L	1.0						
Chloroform	ND	ug/L	1.0						
Chloromethane	ND	ug/L	1.0						
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0						
1,2-Dibromoethane	ND	ug/L	1.0						
Dibromomethane	ND	ug/L	1.0						
1,2-Dichlorobenzene	ND	ug/L	1.0						
1,4-Dichlorobenzene	ND	ug/L	1.0						
Dichlorodifluoromethane	ND	ug/L	1.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R101324
Lab ID: 101014_MBLK_6	Method Blank				Run: 1SATURN_141010A				10/10/14 11:02
1,1-Dichloroethane	ND	ug/L	1.0						
1,2-Dichloroethane	ND	ug/L	1.0						
1,1-Dichloroethene	ND	ug/L	1.0						
cis-1,2-Dichloroethene	ND	ug/L	1.0						
trans-1,2-Dichloroethene	ND	ug/L	1.0						
1,2-Dichloropropane	ND	ug/L	1.0						
cis-1,3-Dichloropropene	ND	ug/L	1.0						
trans-1,3-Dichloropropene	ND	ug/L	1.0						
Ethylbenzene	ND	ug/L	1.0						
2-Hexanone	ND	ug/L	20						
Iodomethane	ND	ug/L	1.0						
Methyl ethyl ketone	ND	ug/L	20						
Methyl isobutyl ketone	ND	ug/L	20						
Methylene chloride	ND	ug/L	1.0						
Styrene	ND	ug/L	1.0						
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0						
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0						
Tetrachloroethene	ND	ug/L	1.0						
Toluene	ND	ug/L	1.0						
1,1,1-Trichloroethane	ND	ug/L	1.0						
1,1,2-Trichloroethane	ND	ug/L	1.0						
Trichloroethene	ND	ug/L	1.0						
Trichlorofluoromethane	ND	ug/L	1.0						
1,2,3-Trichloropropane	ND	ug/L	1.0						
Vinyl acetate	ND	ug/L	1.0						
Vinyl chloride	ND	ug/L	1.0						
m+p-Xylenes	ND	ug/L	1.0						
o-Xylene	ND	ug/L	1.0						
Surr: 1,2-Dichloroethane-d4			1.0	96	69	131			
Surr: Dibromofluoromethane			1.0	103	70	125			
Surr: p-Bromofluorobenzene			1.0	120	76	123			
Surr: Toluene-d8			1.0	92	80	119			
Lab ID: H14100052-005CMS	Sample Matrix Spike				Run: 1SATURN_141010A				10/10/14 19:08
trans-1,4-Dichloro-2-butene	10.1	ug/L	1.0	101	67	132			
Acetone	89.6	ug/L	40	90	55	144			
Benzene	9.52	ug/L	1.0	95	69	129			
Bromochloromethane	8.64	ug/L	1.0	86	72	125			
Bromodichloromethane	9.36	ug/L	1.0	94	71	122			
Bromoform	8.48	ug/L	1.0	85	65	130			
Bromomethane	12.2	ug/L	1.0	122	60	136			
Carbon disulfide	21.3	ug/L	1.0	152	71	135			S
Carbon tetrachloride	9.44	ug/L	1.0	94	77	121			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Report Date: 10/14/14
Project: Mister M Landfill
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R101324
Lab ID: H14100052-005CMS	Sample Matrix Spike				Run: 1SATURN_141010A				10/10/14 19:08
Chlorobenzene	8.80	ug/L	1.0	88	78	120			
Chlorodibromomethane	8.96	ug/L	1.0	90	70	122			
Chloroethane	0.800	ug/L	1.0	8	62	135			S
Chloroform	9.20	ug/L	1.0	92	71	121			
Chloromethane	7.50	ug/L	1.0	75	66	139			
1,2-Dibromo-3-chloropropane	7.98	ug/L	1.0	80	59	130			
1,2-Dibromoethane	9.28	ug/L	1.0	93	60	137			
Dibromomethane	8.24	ug/L	1.0	82	69	122			
1,2-Dichlorobenzene	8.48	ug/L	1.0	85	74	122			
1,4-Dichlorobenzene	8.48	ug/L	1.0	85	75	122			
Dichlorodifluoromethane	9.60	ug/L	1.0	96	57	144			
1,1-Dichloroethane	9.92	ug/L	1.0	99	76	125			
1,2-Dichloroethane	8.80	ug/L	1.0	88	69	131			
1,1-Dichloroethene	8.88	ug/L	1.0	89	67	129			
cis-1,2-Dichloroethene	10.2	ug/L	1.0	102	75	122			
trans-1,2-Dichloroethene	9.76	ug/L	1.0	98	75	124			
1,2-Dichloropropane	9.84	ug/L	1.0	98	75	127			
cis-1,3-Dichloropropene	9.76	ug/L	1.0	98	73	124			
trans-1,3-Dichloropropene	9.36	ug/L	1.0	94	72	127			
Ethylbenzene	9.44	ug/L	1.0	94	74	125			
2-Hexanone	104	ug/L	40	104	70	128			
Iodomethane	7.99	ug/L	1.0	80	52	130			
Methyl ethyl ketone	94.4	ug/L	40	94	56	141			
Methyl isobutyl ketone	102	ug/L	40	102	71	121			
Methylene chloride	7.49	ug/L	1.0	75	61	125			
Styrene	9.84	ug/L	1.0	98	75	120			
1,1,1,2-Tetrachloroethane	9.04	ug/L	1.0	90	76	122			
1,1,2,2-Tetrachloroethane	10.2	ug/L	1.0	102	67	124			
Tetrachloroethene	9.68	ug/L	1.0	97	75	126			
Toluene	9.76	ug/L	1.0	98	73	122			
1,1,1-Trichloroethane	9.60	ug/L	1.0	96	76	124			
1,1,2-Trichloroethane	9.92	ug/L	1.0	99	72	125			
Trichloroethene	9.44	ug/L	1.0	94	72	126			
Trichlorofluoromethane	9.84	ug/L	1.0	98	73	131			
1,2,3-Trichloropropane	11.0	ug/L	1.0	110	58	142			
Vinyl acetate	11.0	ug/L	1.0	110	47	154			
Vinyl chloride	10.9	ug/L	1.0	109	69	129			
m+p-Xylenes	17.3	ug/L	1.0	86	72	124			
o-Xylene	9.44	ug/L	1.0	94	74	123			
Surr: 1,2-Dichloroethane-d4			2.0	98	69	131			
Surr: Dibromofluoromethane			2.0	99	70	125			
Surr: p-Bromofluorobenzene			2.0	103	76	123			
Surr: Toluene-d8			2.0	92	80	119			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R101324	
Lab ID: H14100052-005CMS	Sample Matrix Spike				Run: 1SATURN_141010A			10/10/14 19:08	
- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.									
Lab ID: H14100052-005CMSD	Sample Matrix Spike Duplicate				Run: 1SATURN_141010A			10/10/14 19:36	
trans-1,4-Dichloro-2-butene	9.92	ug/L	1.0	99	67	132	1.6	20	
Acetone	93.6	ug/L	40	94	55	144	4.4	20	
Benzene	9.44	ug/L	1.0	94	69	129	0.8	20	
Bromochloromethane	8.88	ug/L	1.0	89	72	125	2.7	20	
Bromodichloromethane	10.1	ug/L	1.0	101	71	122	7.4	20	
Bromoform	8.96	ug/L	1.0	90	65	130	5.5	20	
Bromomethane	12.2	ug/L	1.0	122	60	136	0.7	20	
Carbon disulfide	18.7	ug/L	1.0	126	71	135	13	20	
Carbon tetrachloride	9.44	ug/L	1.0	94	77	121	0.0	20	
Chlorobenzene	9.20	ug/L	1.0	92	78	120	4.4	20	
Chlorodibromomethane	9.60	ug/L	1.0	96	70	122	6.9	20	
Chloroethane	0.680	ug/L	1.0	7	62	135		20	S
Chloroform	8.96	ug/L	1.0	90	71	121	2.6	20	
Chloromethane	7.82	ug/L	1.0	78	66	139	4.2	20	
1,2-Dibromo-3-chloropropane	10.1	ug/L	1.0	101	59	130	23	20	R
1,2-Dibromoethane	8.88	ug/L	1.0	89	60	137	4.4	20	
Dibromomethane	8.72	ug/L	1.0	87	69	122	5.7	20	
1,2-Dichlorobenzene	8.88	ug/L	1.0	89	74	122	4.6	20	
1,4-Dichlorobenzene	9.28	ug/L	1.0	93	75	122	9.0	20	
Dichlorodifluoromethane	10.1	ug/L	1.0	101	57	144	4.9	20	
1,1-Dichloroethane	10.1	ug/L	1.0	101	76	125	1.6	20	
1,2-Dichloroethane	7.96	ug/L	1.0	80	69	131	10	20	
1,1-Dichloroethene	8.80	ug/L	1.0	88	67	129	0.9	20	
cis-1,2-Dichloroethene	10.2	ug/L	1.0	102	75	122	0.8	20	
trans-1,2-Dichloroethene	9.44	ug/L	1.0	94	75	124	3.3	20	
1,2-Dichloropropane	10.4	ug/L	1.0	104	75	127	5.5	20	
cis-1,3-Dichloropropene	10.1	ug/L	1.0	101	73	124	3.2	20	
trans-1,3-Dichloropropene	8.88	ug/L	1.0	89	72	127	5.3	20	
Ethylbenzene	9.44	ug/L	1.0	94	74	125	0.0	20	
2-Hexanone	108	ug/L	40	108	70	128	3.8	20	
Iodomethane	8.00	ug/L	1.0	80	52	130	0.1	20	
Methyl ethyl ketone	94.4	ug/L	40	94	56	141	0.0	20	
Methyl isobutyl ketone	98.4	ug/L	40	98	71	121	3.2	20	
Methylene chloride	7.30	ug/L	1.0	73	61	125	2.5	20	
Styrene	10.4	ug/L	1.0	104	75	120	5.5	20	
1,1,1,2-Tetrachloroethane	9.12	ug/L	1.0	91	76	122	0.9	20	
1,1,2,2-Tetrachloroethane	10.1	ug/L	1.0	101	67	124	0.8	20	
Tetrachloroethene	9.60	ug/L	1.0	96	75	126	0.8	20	
Toluene	9.84	ug/L	1.0	98	73	122	0.8	20	
1,1,1-Trichloroethane	9.36	ug/L	1.0	94	76	124	2.5	20	
1,1,2-Trichloroethane	9.60	ug/L	1.0	96	72	125	3.3	20	

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT-DEQ Solid Waste Section
Project: Mister M Landfill

Report Date: 10/14/14
Work Order: H14100052

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R101324
Lab ID: H14100052-005CMSD	Sample Matrix Spike Duplicate				Run: 1SATURN_141010A				10/10/14 19:36
Trichloroethene	9.84	ug/L	1.0	98	72	126	4.1	20	
Trichlorofluoromethane	9.28	ug/L	1.0	93	73	131	5.9	20	
1,2,3-Trichloropropane	9.44	ug/L	1.0	94	58	142	15	20	
Vinyl acetate	11.0	ug/L	1.0	110	47	154	0.7	20	
Vinyl chloride	11.1	ug/L	1.0	111	69	129	2.2	20	
m+p-Xylenes	18.2	ug/L	1.0	91	72	124	5.4	20	
o-Xylene	9.04	ug/L	1.0	90	74	123	4.3	20	
Surr: 1,2-Dichloroethane-d4			2.0	97	69	131			
Surr: Dibromofluoromethane			2.0	98	70	125			
Surr: p-Bromofluorobenzene			2.0	102	76	123			
Surr: Toluene-d8			2.0	95	80	119			

- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

MT-DEQ Solid Waste Section

H14100052

Login completed by: Tracy L. Lorash
Date Received: 10/2/2014
Reviewed by: BL2000\rwilliams
Received by: AHN
Reviewed Date: 10/7/2014
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.3°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Sample ID on COC is (HW) MW-HW -ID on bottles is MW-HW. Logged in with ID from COC.
Collection time on COC for MW-11 is 15:10 - bottles have time of 15:15. Logged in with time from COC.
Analysis requested on COC does not include metals. Per John, we are to analyze for dissolved metals. Took analytes from parameter list provided by client.
Nutrients sample(s) were subsampled and preserved to pH <2 with 2 mL of sulfuric acid per 250 mL in the laboratory upon receipt. TI 10/3/14

Chain of Custody and Analytical Request Record

Page _____ of _____

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
Montana DEQ - SWS	Missoula Landfill	State: MT	Yes ☐ No ☐
Report Mail Address (Required):	**Contact Name:**	**Phone/Fax:**	**Cell:**	**Sampler: (Please Print)**
1520 East Sixth Ave Helena, MT 59620	John Collins	406 444-2802		John Collins
☑ No Hard Copy Email: jcollins3@mt.gov	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**
	SAA		15890

Invoice Address (Required): SAA

☑ No Hard Copy Email: _____

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☑ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:
+ Wid water + Nitrate bottles mistakenly preserved w/HCl instead of H2SO4

Shipped by: Hand
Cooler ID(s): Yes
Receipt Temp: 3.3 °C TR
On Ice: Y (N)
Custody Seal: On Bottle Y (N) On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Cond, Ph, E.Zn	*Filtrate + Nitrate	8260 B	
1	(HW) MW-HW	10-1-14	1115	W	✓	✓	✓	(House well)
2	MW-9R	10-1-14	1215	W	✓	✓	✓	(9R = replacement)
3	MW-OW	10-1-14	1300	W	✓	✓	✓	(OW = office well)
4	MW-12	10-1-14	1400	W	✓	✓	✓	
5	MW-11	10-1-14	1510	W	✓	✓	✓	
6								
7								
8								
9								
10								

LABORATORY USE ONLY A14100052

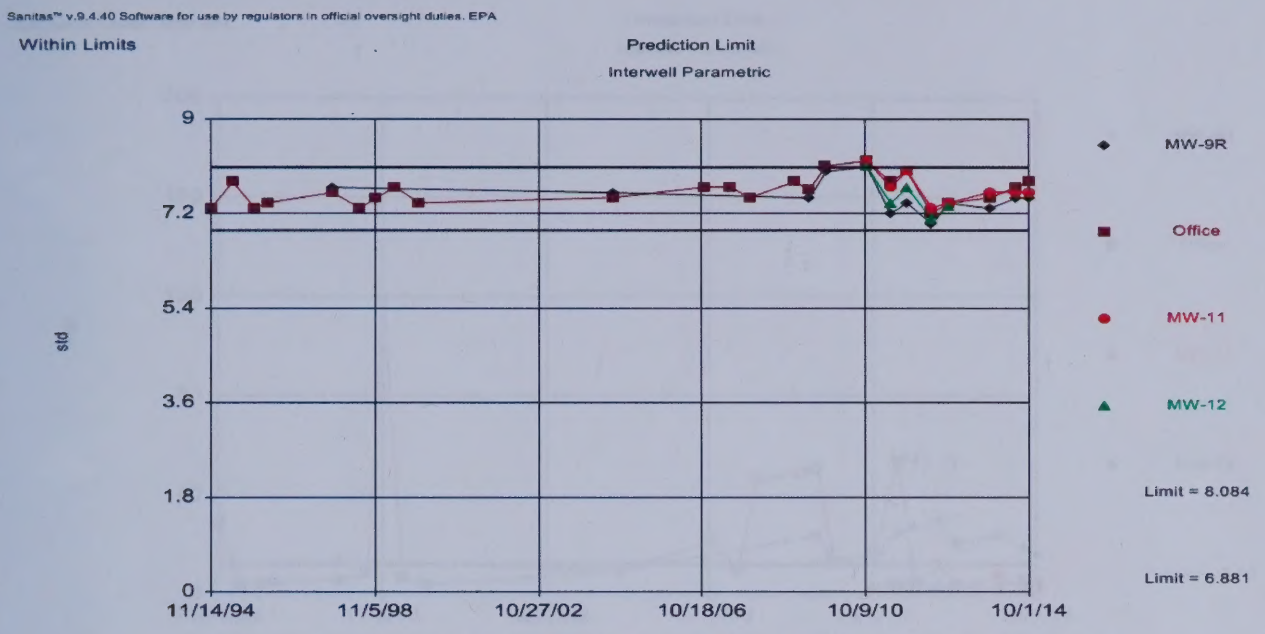
Custody Record MUST be Signed

Relinquished by (print): John Collins	Date/Time: 10/2/14 1410	Signature:	Received by (print):	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Austin Neerness	Date/Time: 10/2/14 1410	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

APPENDIX B: RESULTS OF STATISTICAL ANALYSES

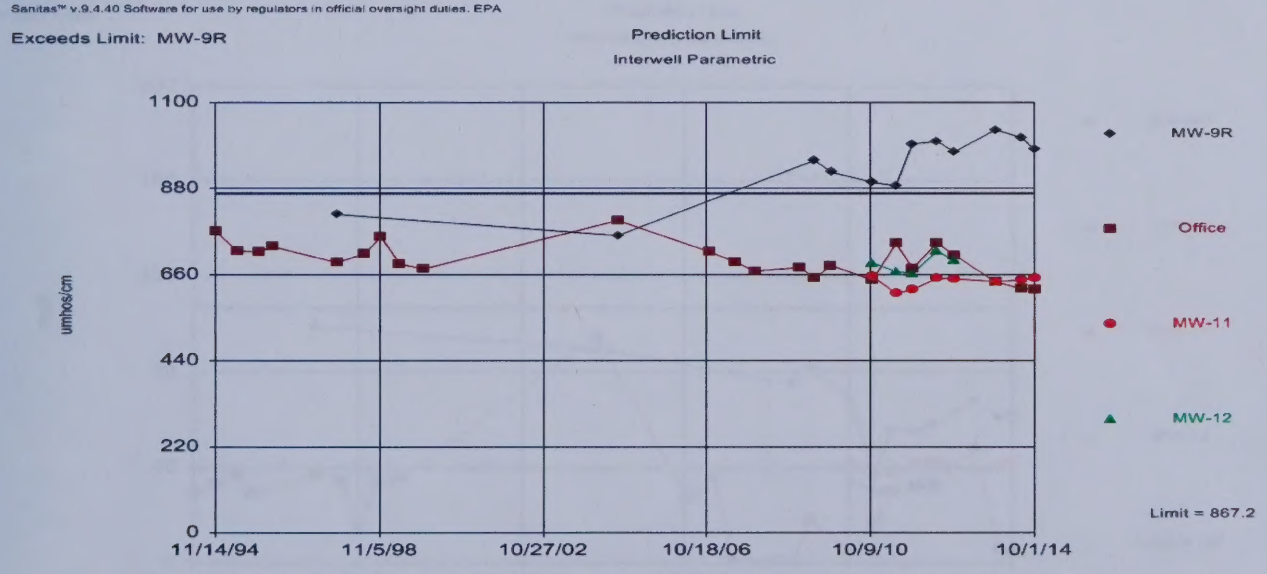
Figure F-1: Prediction Limit Analysis for pH



Background Data Summary: Mean=7.482, Std. Dev.=0.2185, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.972, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 1/29/2015 9:16 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas

Figure F-2: Prediction Limit Analysis for Conductivity



Background Data Summary: Mean=767.2, Std. Dev.=41.04, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9518, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 1/29/2015 9:19 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



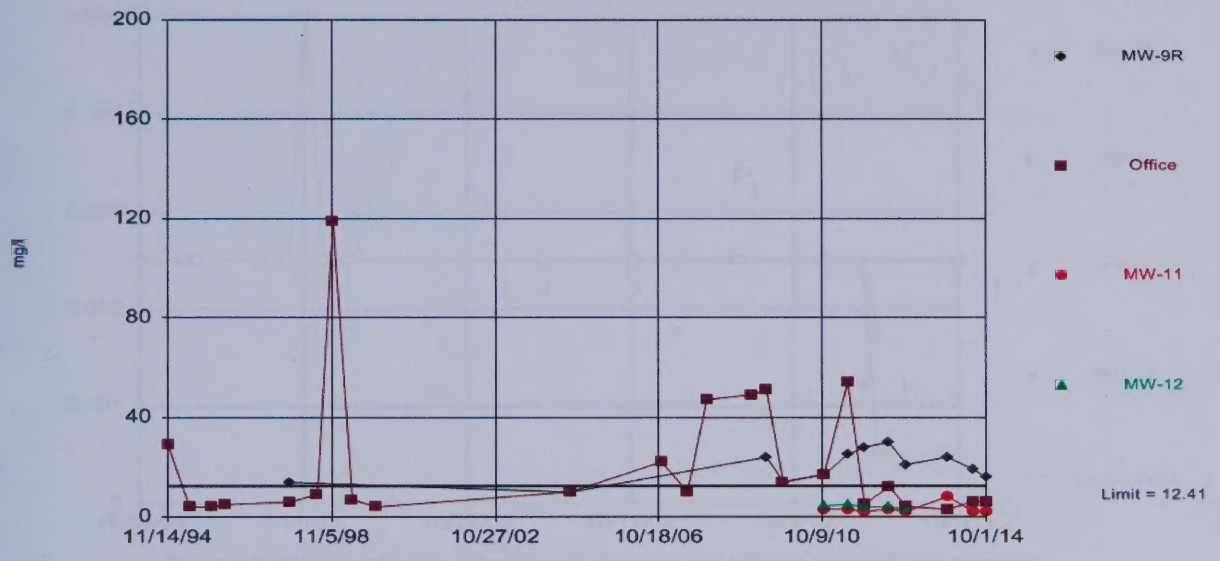
Figure F-3: Prediction Limit Analysis for Chloride

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.76, Std. Dev.=2.319, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9185, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 1/29/2015 9:20 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas

Figure F-4: Prediction Limit Analysis for Sulfate

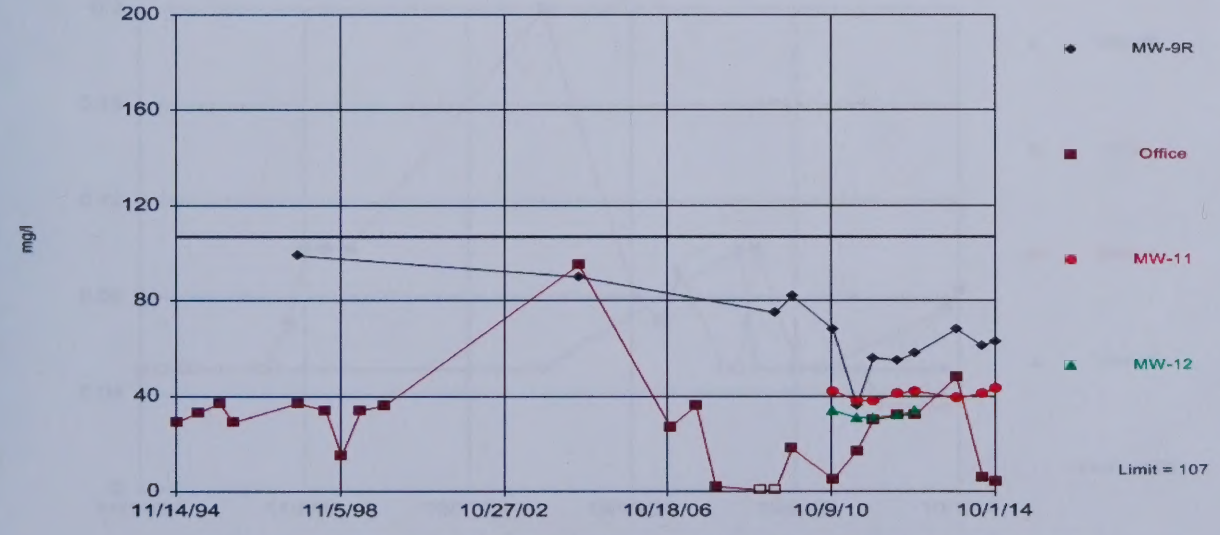
Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 25 background values. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 1/29/2015 9:21 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



Figure F-5: Prediction Limit Analysis for Arsenic

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: MW-12



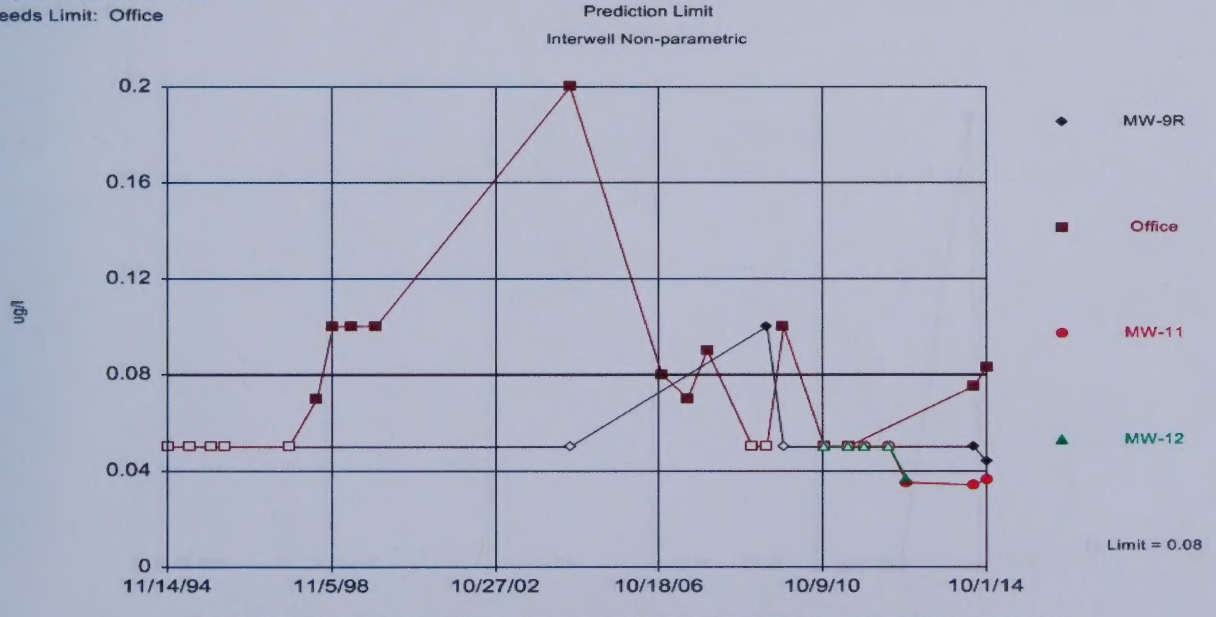
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 24) were censored; limit is most recent reporting limit. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Arsenic Analysis Run 1/29/2015 9:23 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas

Figure F-6: Prediction Limit Analysis for Barium

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 24 background values. 66.67% NDs. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

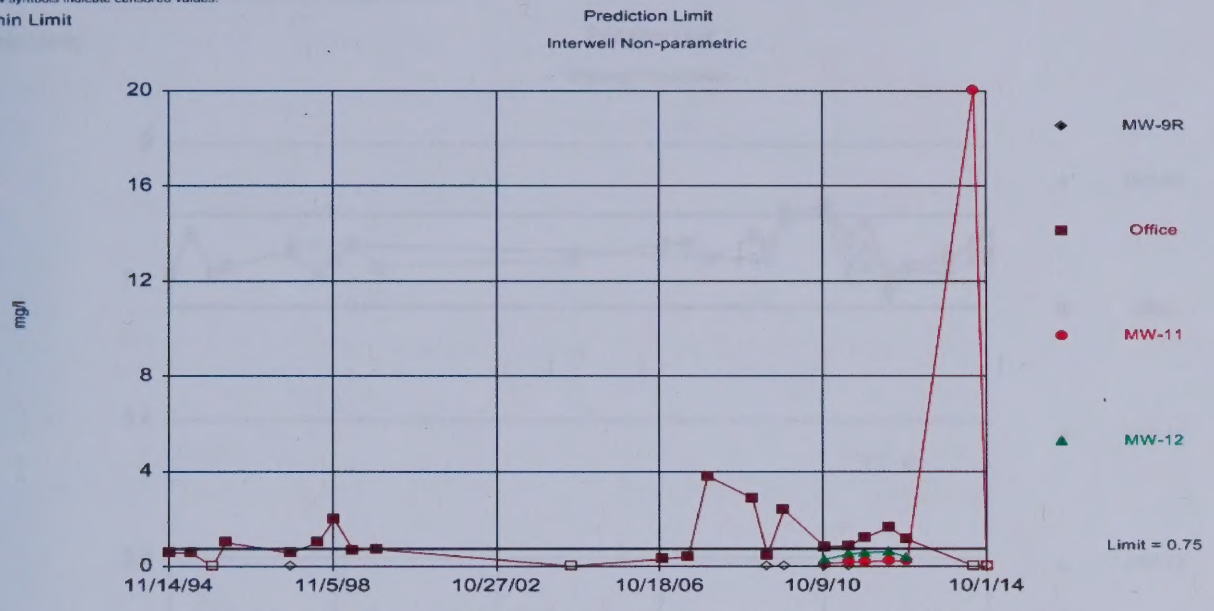
Constituent: Barium Analysis Run 1/29/2015 9:28 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



Figure F-7: Prediction Limit Analysis for Iron

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit



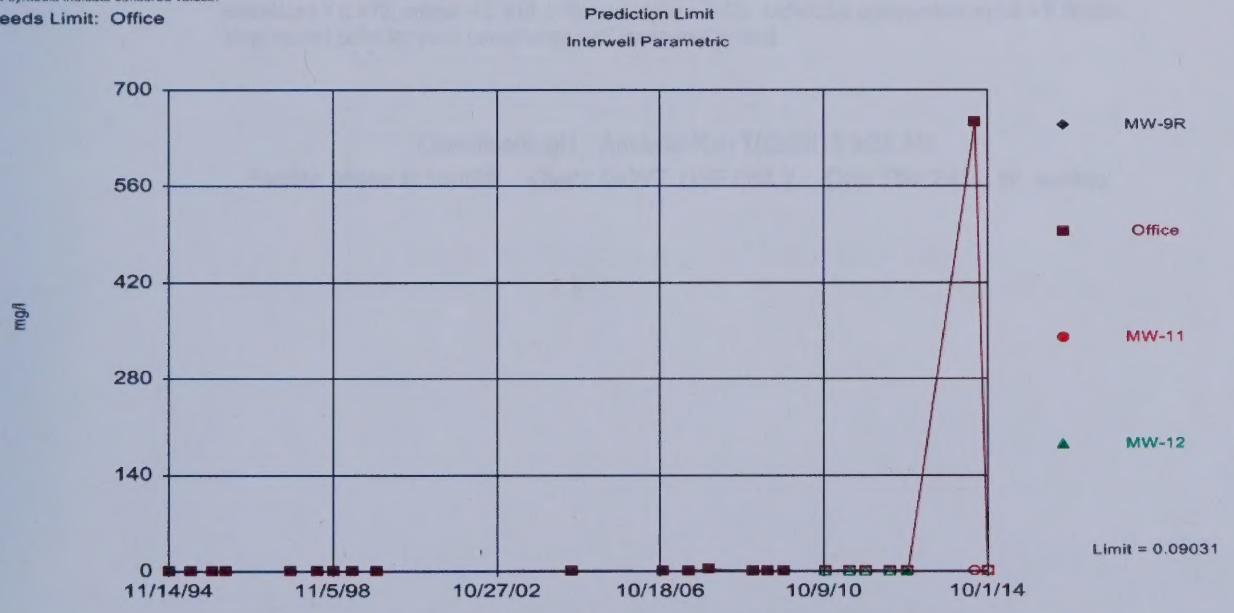
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 72% NDs. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Iron Analysis Run 1/29/2015 9:32 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas

Figure F-8: Prediction Limit Analysis for Zinc

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: Office



Background Data Summary (based on square root transformation): Mean=0.1751, Std. Dev.=0.05144, n=25, 4% NDs. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9586, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Zinc Analysis Run 1/29/2015 9:32 AM
Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



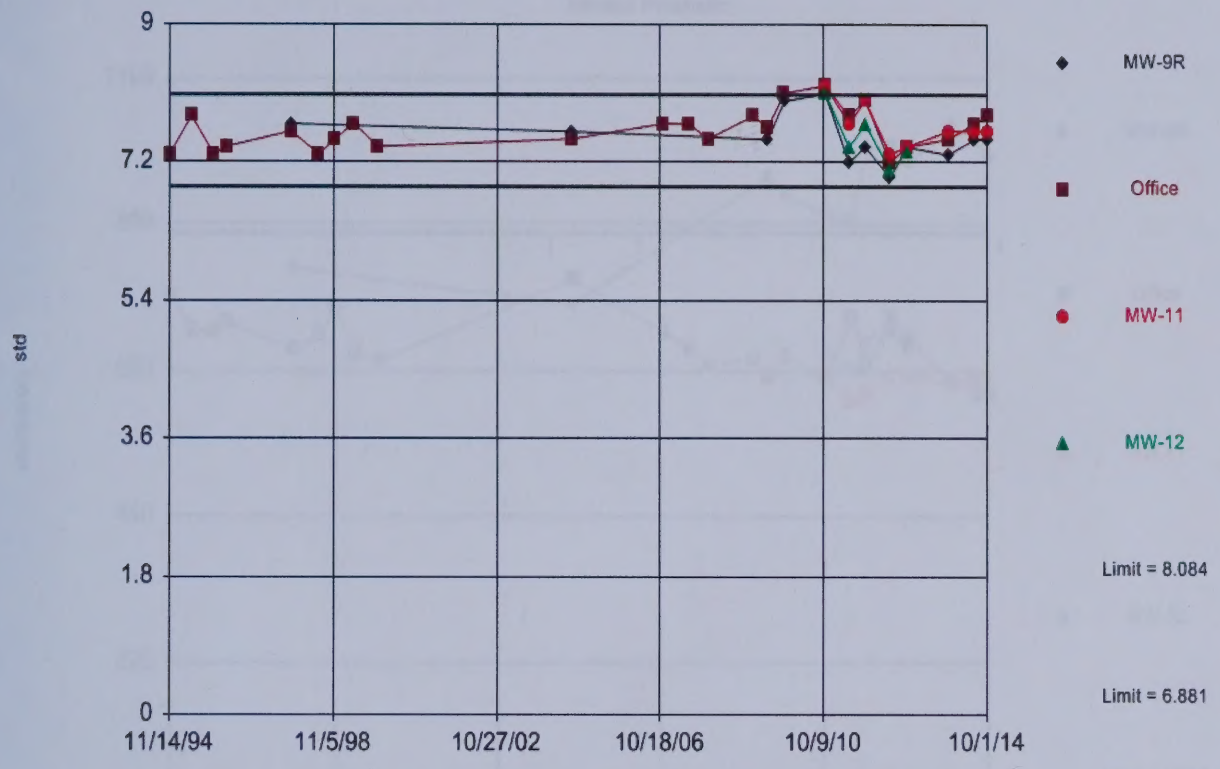
Figure F-9: Trend Analysis for pH

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.482, Std. Dev.=0.2185, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.972, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.00625. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 1/29/2015 9:38 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas

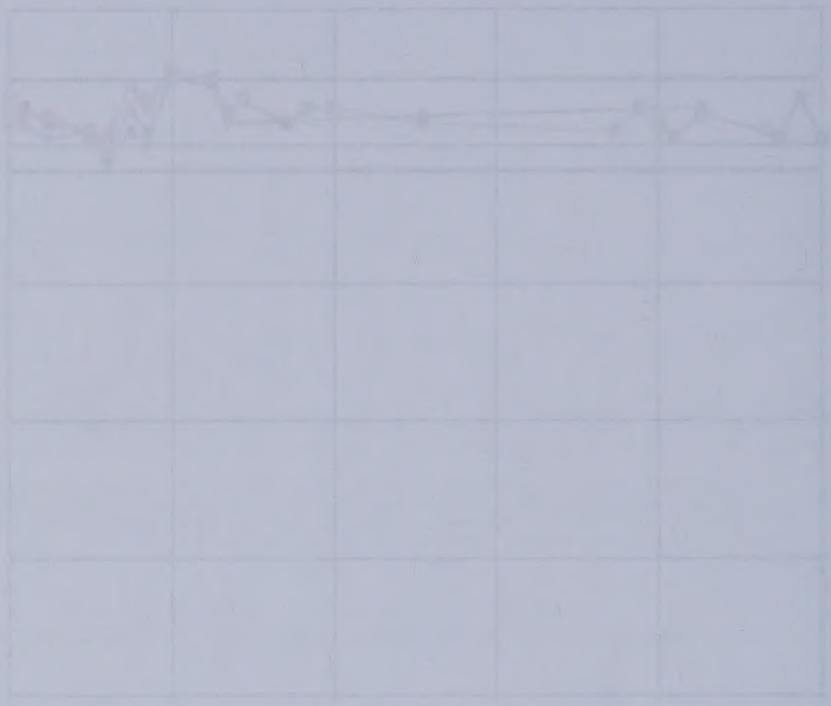


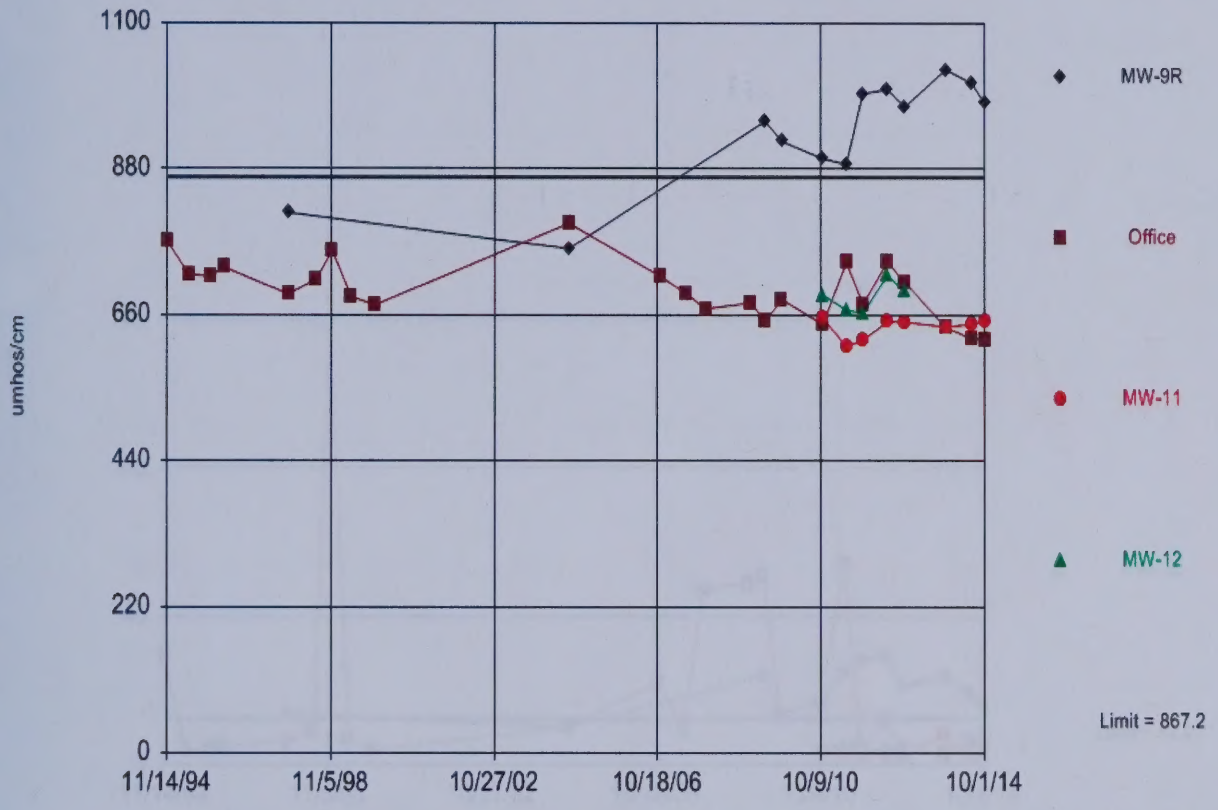
Figure F-10: Trend Analysis for Specific Conductance

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=767.2, Std. Dev.=41.04, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9518, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: SC Analysis Run 1/29/2015 9:48 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



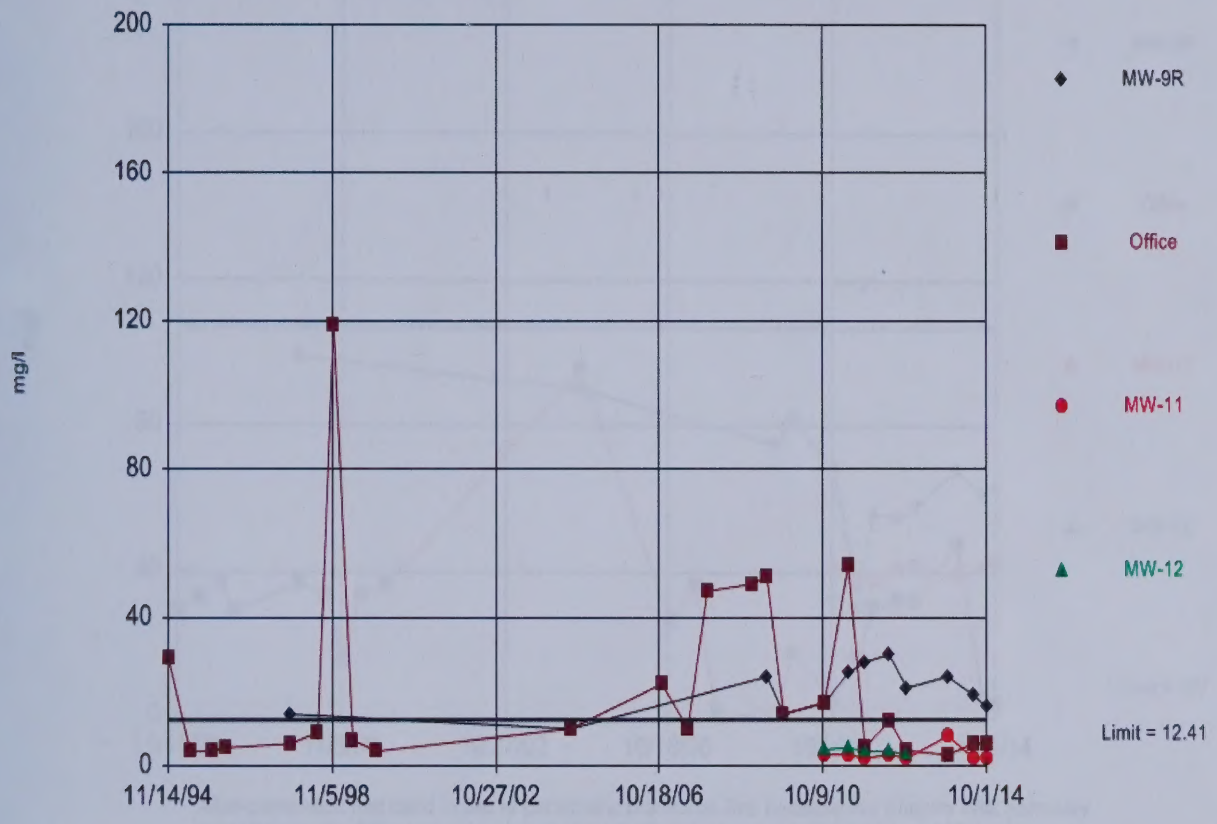
Figure F-11: Trend Analysis for Chloride

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA

Exceeds Limit: MW-9R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.76, Std. Dev.=2.319, n=25. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9185, critical = 0.918. Report alpha = 0.05. Individual comparison alpha = 0.0125. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 1/29/2015 9:50 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



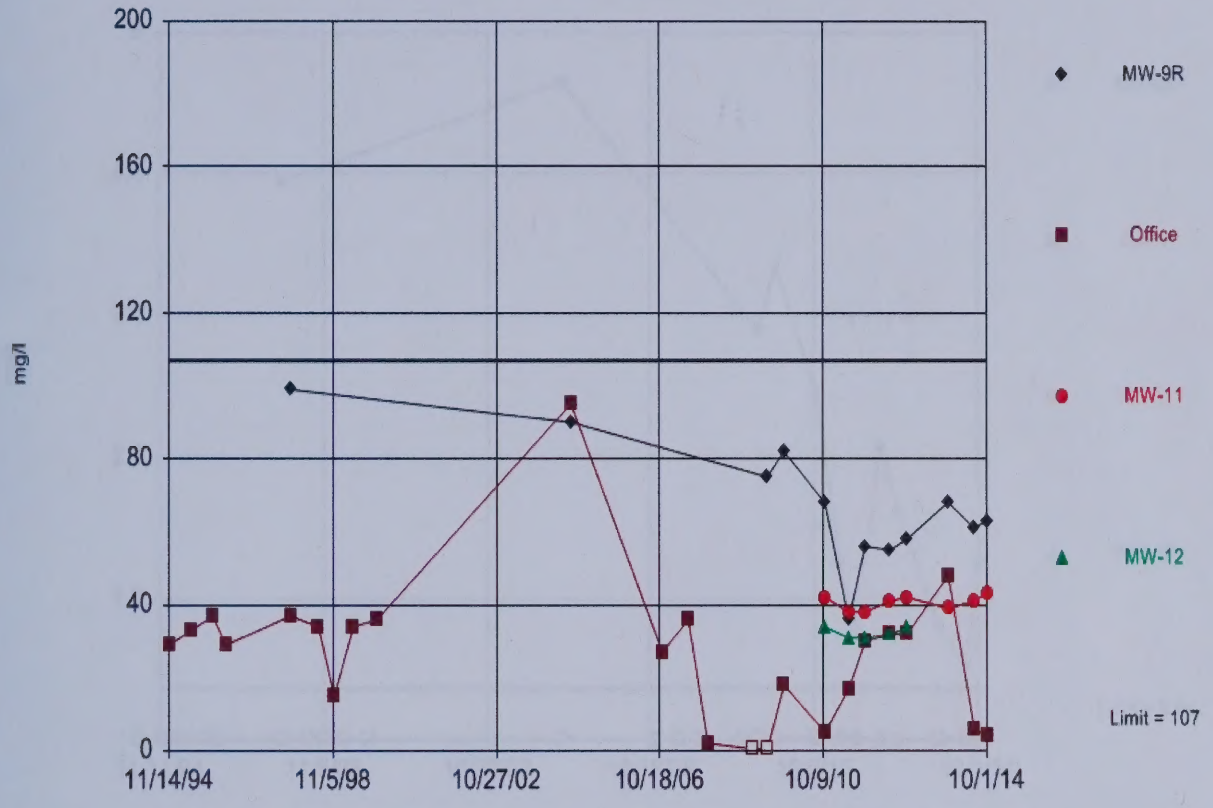
Figure F-12: Trend Analysis for Sulfate

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 25 background values. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 1/29/2015 9:51 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



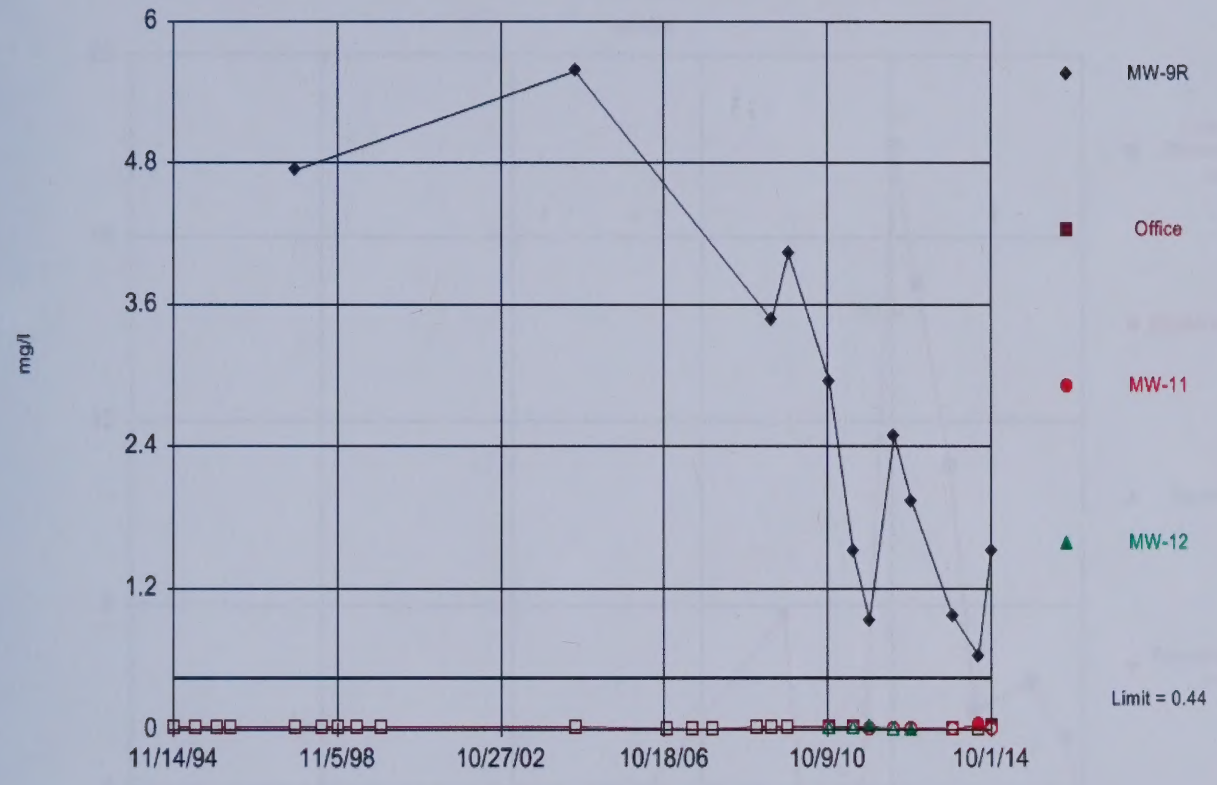
Figure F-13: Trend Analysis for Nitrate + Nitrite

Sanitas™ v.9.4.40 Software for use by regulators in official oversight duties. EPA
Hollow symbols indicate censored values.

Exceeds Limit: MW-9R

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 52% NDs. Report alpha = 0.1379. Individual comparison alpha = 0.03643. Most recent point for each compliance well compared to limit. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Nitrate+Nitrite Analysis Run 1/29/2015 9:53 AM

Facility: Mister M Landfill Client: GOVT. USE ONLY Data File: 2014 10 sanitas



Figure F-14: Trend Analysis for selected VOC's in MW-9R

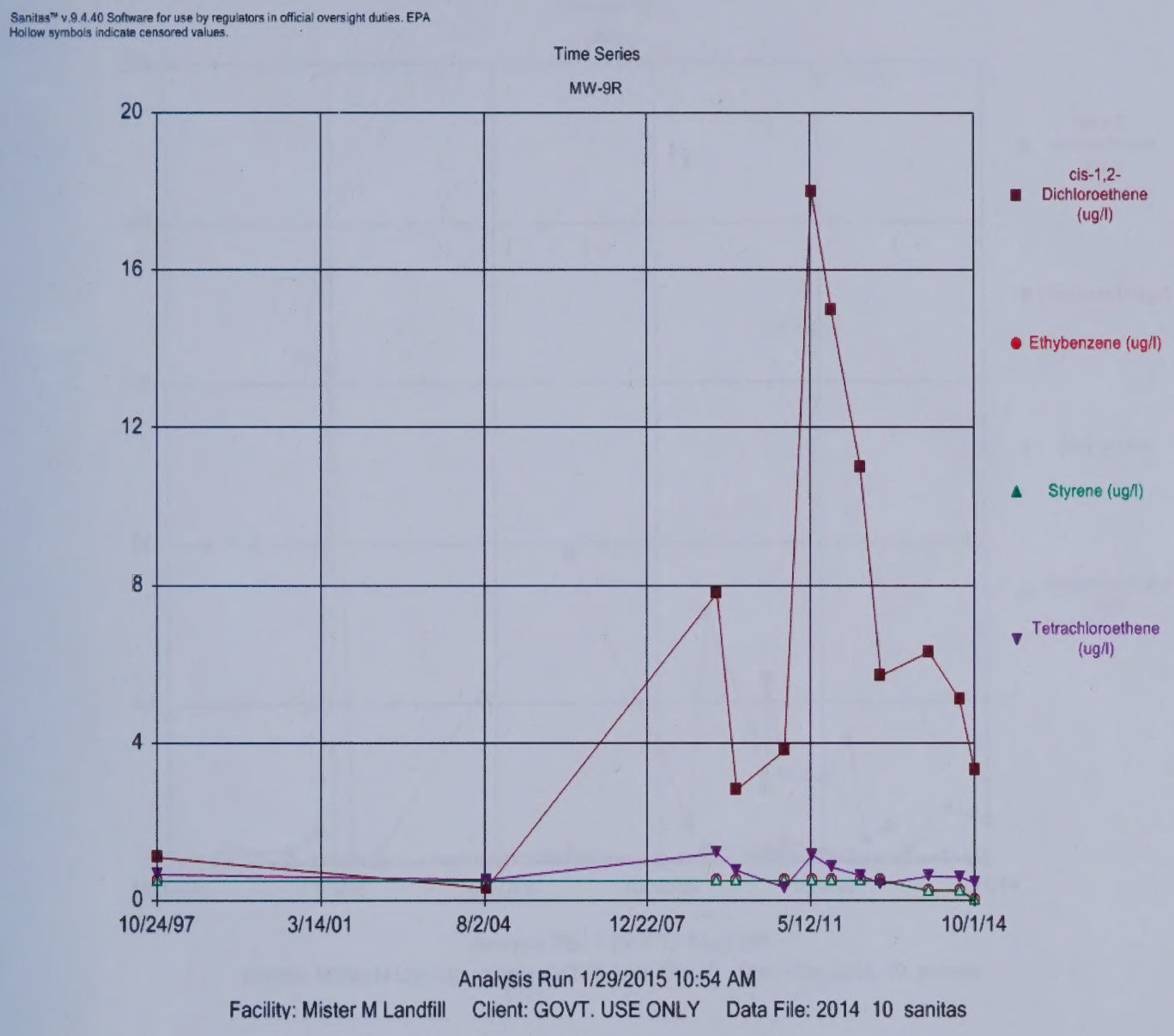




Figure F-15: Trend Analysis for selected VOC's in MW-OW

